HOARD'S DAIRYMAN

THE NATIONAL DAIRY FARM MAGAZINE

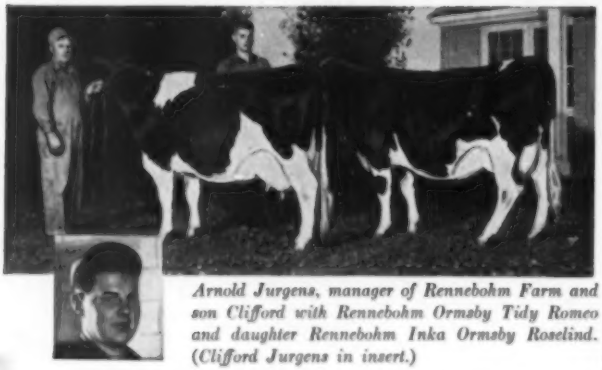
In This Issue

Winners in 21st Annual Cow Judging Contest

Our 66th year of reliable service to American agriculture

Volume 96, No. 9 Fort Atkinson, Wisconsin May 10, 1951

PROMINENT DAIRYMEN SAY PENSTIX® BEST WAY TO CONTROL MASTITIS FAST



Arnold Jurgens, manager of Rennebohm Farm and son Clifford with Rennebohm Ormsby Tidy Romeo and daughter Rennebohm Inka Ormsby Roselind. (Clifford Jurgens in insert.)

Frank Elderbrook, with one of his herd of fine Holsteins.

NEVER EXPECTED TO SAVE THIS COW: PENSTIX TURNED THE TRICK

BURLINGTON, WIS.—Frank Elderbrook, along with his brother and father, operate two dairy farms here, totaling nearly 270 acres. They milk an average of 55 Holsteins. Mr. Elderbrook has tried many methods of treatment for mastitis through the years he has been in the business, and says he has never found anything to equal Penstix for its uniformly fine results.

"Last March," he says, "we had a cow infected with mastitis that we never expected to save. Then we started using Penstix. Her udder was terribly inflamed and it certainly looked like a hopeless case. We kept right on using Penstix every day, until she was dried up. Three months ago this cow freshened, and has been milking well in all four quarters. Her bag is in good condition without a sign of mastitis."

Mr. Elderbrook likes to use Penstix and keeps a supply on hand all the time. Here's how he feels about Wyeth Penstix. "They are the most convenient, sanitary method I know for mastitis control. We like the way they are wrapped, and the fact that Penstix does not require refrigeration. You can put me down for Penstix every time."

NO 'LOST QUARTERS' ON RENNEBOHM FARM WITH PENSTIX

MADISON, WIS.—"We haven't been losing quarters since using Penstix," Clifford Jurgens, herdsman on the Rennebohm Farm here stated at a recent interview. He and his father, Arnold, manager of the farm, have been using Penstix for the treatment of mastitis since these penicillin bougies first appeared on the market two years ago.

Farming 285 acres with 107 registered Holsteins, Clifford Jurgens finds Penstix easy to use, easy to keep on hand. He says, "At the first sign of mastitis we insert two Penstix into the infected quarter and then follow this up with one insertion every twelve hours. Often the infection clears up completely in less than two days. Never takes more than three in the more serious cases."

Commenting on Penstix-SM bougies, the new combined antibiotic treatment, combining penicillin and dihydrostreptomycin in a single bougie, Mr. Jurgens said, "We are mighty glad to have Penstix-SM available, with streptomycin added, especially for treatment of severe infections. But for most cases of mastitis, I don't see how you can beat Penstix."

FAMED PABST FARMS ALWAYS USE PENSTIX: SAY RESULTS EXCELLENT!

OCONOMOWOC, WIS.—Pabst Farms located near this Wisconsin town, maintain 420 registered Holsteins on three farm sites. In 1950 the Pabst Farm herds were the winners of 38 blue ribbons at five state and national farm shows. They were named 'premier exhibitor and breeder' at the Milwaukee-Wisconsin State Fair, the Indianapolis-International Dairy Show and the Iowa National Dairy Congress.

Sylvester Weiler, head herdsman for the Pabst Farms, is an enthusiastic booster for Wyeth Penstix in mastitis control. He says, "Penstix play an important part in our herd management program. Because of accidental injuries to the udder, it is impossible to eliminate mastitis a hundred per cent. That's why we always keep several packages of Penstix handy, in every one of our barns."

Mr. Weiler goes on to state, "All of our men are instructed to use Penstix at the very first sign of trouble. Insertion is easy, and the results throughout the herd have been uniformly fine."

Sylvester Weiler, head herdsman at Pabst Farms near Oconomowoc, Wis.

The Pabst Farms have been breeding and developing outstanding Holstein-Friesians on their farms since 1908, and have consistently been the winners of blue ribbons and awards for their cows since that time.

Farm management at Pabst Farms has always featured factual information in planning every operation, the consideration of new methods and devices and a very complete record of every operation. Mr. Pabst himself has been frequently honored for his contributions to better farming methods, recently receiving a certificate of recognition from the University of Wisconsin.

WYETH PENSTIX OR OINTMENT MAKE MASTITIS CONTROL EASY

Now you can get the treatment to fit the infection, when mastitis visits your herd. Dairymen everywhere are talking about the effective, economical, easy to use Wyeth line of products for control of this disease, one of the most costly to the dairy industry.

Penstix penicillin bougies each contain 25,000 units of crystalline penicillin G, effective in treatment of mastitis caused by streptococcus agalactiae. The Penstix-SM bougies contain the same amount of penicillin with the addition of 25,000 units of streptomycin. This latter combined antibiotic treatment is most effective in more severe forms of mastitis infection.

For cows with dry quarters, where the use of bougies is impractical Wyeth Penicillin Ointment is usually indicated or the Penicillin Dihydrostreptomycin Ointment, in the new easy-to-insert tubes.

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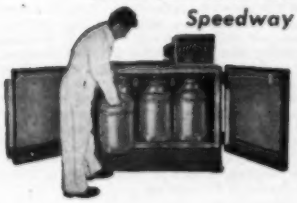

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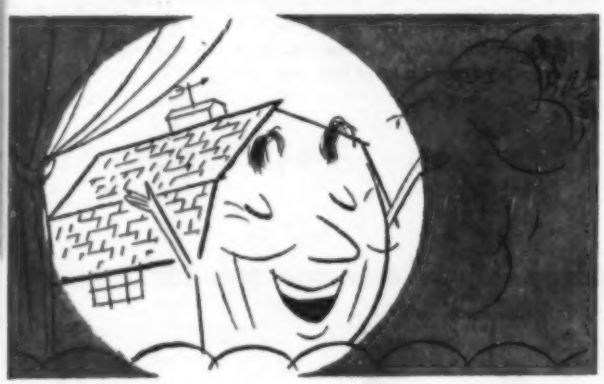

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HOARD'S DAIRYMAN

The National Dairy Farm Magazine

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COVER PICTURE

It is our frequent observation that the wife of a dairyman is a very important part of the successful operation of a dairy farm. Time and again we have seen women who have the patience, interest, and ability to work with their husbands in carrying out a successful livestock program. That patience, interest, and ability is not always an acquired trait. On the contrary, in many cases it is an inborn love of animals and of country living. It is a trait to be highly desired and admired in the wife of a successful dairyman. The lady with the two Guernsey calves on this issue's cover is Mrs. Jean Pursell. The picture was taken by the Lambert Studios of Philadelphia at Witchwood Farms in Pennsylvania.

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Hoard's Dairyman is published on the 10th and 25th of each month. Advertising copy for the 10th of the month issue must be received before the 15th of the preceding month. For the 25th of the month issue, copy must be received by the 1st of that month.

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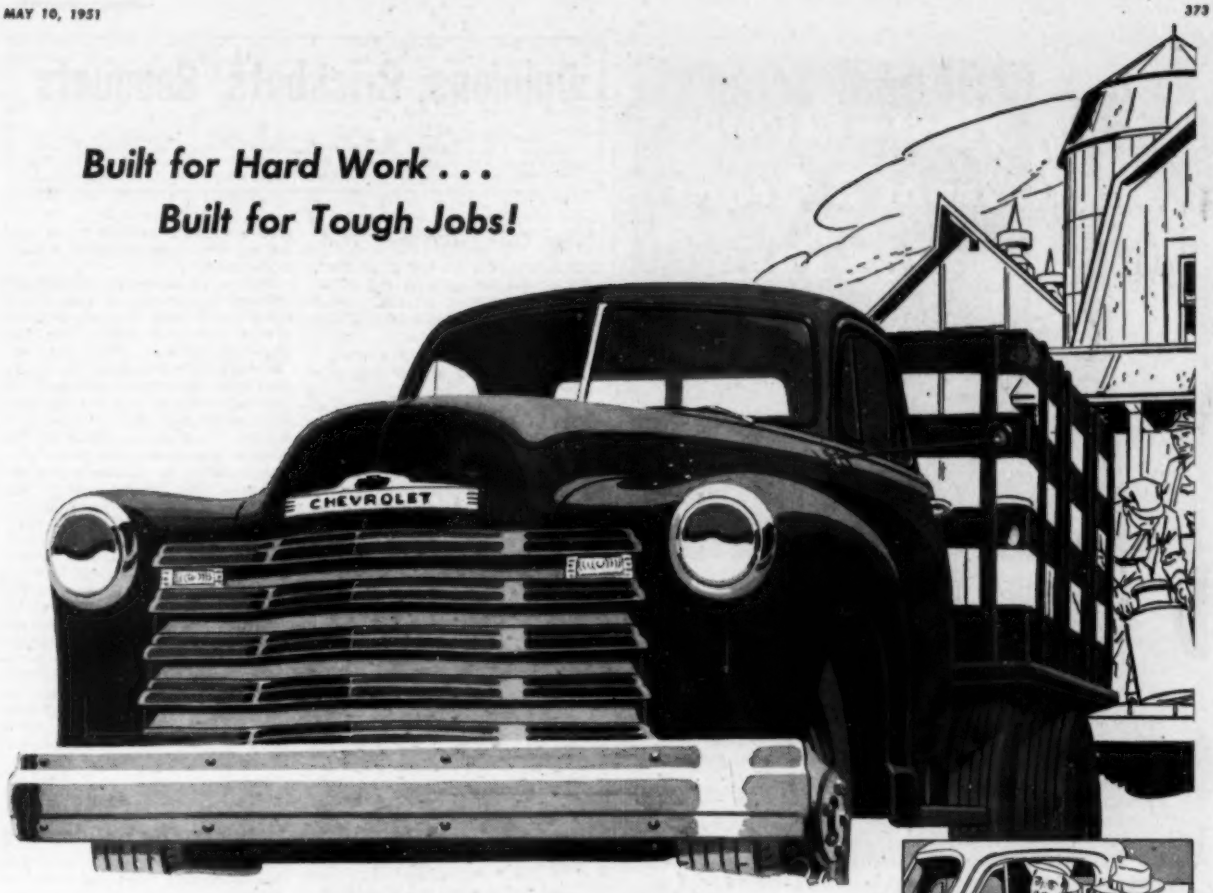

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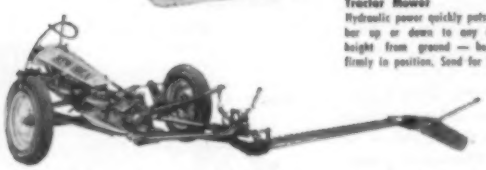

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Opinions, Brickbats, Bouquets

These columns are open to the readers of Hoard's Dairyman for the expression of their opinion on any subject, whether radical or conservative, destructive or constructive, wise or foolish, critical or commendatory. Hoard's Dairyman assumes no responsibility for opinions expressed.

New York Dairymen Win

THE LEGISLATURE OF THE GREAT DAIRY STATE OF NEW YORK HAS JUST KILLED YELLOW OLEO. THANKS FOR YOUR HELP.

SHARON J. MAUHS,
Member of the Assembly.

More On Plank System

HOARD'S DAIRYMAN:—Your interest in our system of bedding cows has indeed made us happy. Since my article ran in Hoard's Dairyman a lot of dairymen have started to enjoy the benefits of the "plank system." I am sure that any dairyman who installs a plank will never remove it.

We have a 2 x 6 inch plank in our barn. As these planks wear out, I think we will replace them with 2 x 8's. We leave them in our barn the year round. In the summer the cows stand in front of a 2 x 6 and their legs look crooked. I believe they would stand on top of a 2 x 8 inch plank.

You can first try it by wiring the plank to a few divider pipes between the cows. Just lay the plank down flat on the rear portion of the cow platform where the cows stand, wire it, and in a couple of minutes you are ready to go.

The bad thing about baling wire is that it will rust out quite often. We decided to put a stop to this. We went down to the hardware store and bought a ⅝-inch cement bit for an electric drill. We bought enough ⅝-inch bolts so that we could put a bolt every ten feet or so. We then drilled the holes in the plank (do not use the cement bit for this). Then we laid the plank where we wanted it so that we could mark where the holes should be in the concrete. We drilled the holes and inserted the bolts. We nailed a piece of tin over the bolt heads with roofing nails to keep the bolts from working out. We have gone two years with these bolted planks without a minute of repair.

If you feel that this system of bedding cows does you some good, I would be glad to hear from you again.

Don't forget that this system works best with a mixture of shavings and straw, or ground corn cobs and straw, corn fodder, or chopped straw.

Iowa. WAYNE K. ROSTENBACH.

Milk Replaces Soft Drinks

HOARD'S DAIRYMAN:—On page 176 of the February 25th issue an article entitled "Vending Machines Increase Milk Consumption," by W. B. Ward interests us very much and possibly we might contribute a little to the cause, too.

About three months ago we installed four Ideal milk vending machines in the Anaconda smelter at Anaconda, Montana, where 1,000 men work around the clock, and from results achieved so far it seems that each machine is selling about 656 one-third quarts of milk per week at 10 cents each, and we are putting in four more in other locations around the smelter which covers an area approximately 2 miles x 1½ miles.

We are rather proud of this distribution due to the fact that it is a brand new market that was held by "coke" or similar soft drinks, but the superintendent of the plant favors milk for two reasons. He knows the value of milk as compared to carbonated drinks and, furthermore, there is always more or less of a liability from broken glass of the glass bottles around the plant. Our representative in Anaconda has the exclusive right to sell milk in the smelter which is in a fenced area.

While I am on the subject—last week in Los Angeles I was told that the health department had okayed a bulk dispenser that would put out a glass of milk for 5 cents in the school. I did not have time to investigate further, but personally would prefer the carton such as we use as the original contents go to the customer in the original package.

I am informed at Anaconda the boys take two or three of the one-third quarts home in their lunch boxes which is quite a compliment to our Challenge brand of milk.

Idaho. E. S. TRASK.

Standing On Wooden Leg

HOARD'S DAIRYMAN:—I have just finished reading "Oleo Fraud Marches On," on the editorial page of the March 10 issue of your magazine. I don't think you have a leg to stand on. Well, perhaps a wooden leg. I hope that the wishes of the American consumers will saw that wooden leg right from under you.

The whole point is that the western dairy farmers are sore that they aren't selling their butter. They're sore because they can't soak the public. It certainly wouldn't be American justice to force a law on the American people to protect the selfish interests of one group; namely, the dairy farmers, especially the western dairy farmers. If they can't compete with oleo, then they'd better just keep quiet.

Vermont. JEAN MACKIMMIE.

Another Look at the Champion's Record

HOARD'S DAIRYMAN:—You deserve congratulations for the restraint shown in the article about the champion Holstein cow in your issue of February 10. You report merely the facts, without implying directly that other dairymen should strive for similar records with their cows.

Further pertinent facts concerning the champion's 4x, 365-day record of 1,413.6 lbs. fat are that by applying the Bureau of Dairy Industry conversion factor of .889 for changing this to a 3x record, the figure becomes 1,256.6 lbs. And by applying the B.D.I. factor of .63 for changing the original record to a 2x, 305-day basis, the figure becomes 890.6 lbs. These are still outstanding records but not so sky-high in their respective divisions as might be assumed from considering merely the record of 1,413.6 lbs.

Though conversion factors are not strictly accurate for most individual

cows (actually it is likely that high producers tend to produce less than the factors suggest when these cows are changed to a basis of fewer milkings), the factors provide the best means available for comparing one cow with another in a different division of testing.

Furthermore, it may be wondered whether the champion's inheritance for high production was any more remarkable than her environment. Dairymen who test their cows on the standard DHIA basis of 610 milkings and who maintain rather an average environment should not be unduly overawed by the great inheritance supposedly indicated by this record that was based on 1,460 milkings and an environment that included such features as hay fed 10 times daily and (when the cow was not on pasture) silage and beets and kale every day.

ALEXANDER LINCOLN, JR.
New Hampshire.

Keep It Technical

HOARD'S DAIRYMAN:—This is in response to your editorial comment of February 10, 1951, entitled "Understanded of the People." Provided one has viewed scientific progress ostrich-wise for a long period of time, one could readily sympathize with Major Griffith in his adverseness to the words phenotype and phenothiazine. There were no such words to plague the mind in the days when a man could have any color car he wanted as long as it was black.

How indescribably boring *to* those who originated each word. It's no wonder they leave you stiff. Certainly it would have been more appropriate to use "something to do with inheritance" for phenotype, and "a soverign remedy for internal parasites" for phenothiazine. Isn't it typical of the "brightly-polished, spanking-new neophyte in the land of the learned" to have "violated the simple principles of good expression," and reverted to American journalese in coining both words? Wonder what his reaction is to the GI's bazooka and the sailor's Mae West life jacket. Bored and stiff?

By the way, your neophyte is showing. It has both a Latin (neophytus) and a Greek (neophytas) root.

As for bluster, you should recognize it readily. From the February 10, 1951, publication — "Butter is colored to give uniformity. Oleo is colored to deceive."

LEWIS PERKINS, JR., D. V. M.
Louisiana.

"Inflation Acres"

HOARD'S DAIRYMAN:—The letter, "Levy Excess Property Tax" by E. G. of Nebraska, in the February 25 issue of Hoard's Dairyman, was of interest to me. The tax idea has merit, particularly if it were a progressive land tax and not a totally confiscatory tax.

On the other hand, such a tax does not get at the cause of much of present-day farm buying by non-operators. The chief reason for much of that purchasing is the present growing flight from the dollar. My wife and I have purchased a small Missouri farm which I please to title "Inflation Acres."

In order to offset losses in value of life insurance and government bonds, we feel that we must do some hedging, such as farm and home ownership.

The cause, then, is the debasement of the dollar. Fifty-cent dollars, which next month may be 45-cent dollars, have cut our life insurance values exactly in half. Many people with small income, whose particular buying needs require a higher percentage of the high priced necessities, are really purchasing with 40-cent dollars already.

There is, then, absolutely nothing which will take the place of an aroused public opinion (which must be a great deal better informed than it is now), followed by governmental action toward making our United States dollar regain its old integrity.

A great deal is said about the causes of inflation and we busily create a big price control system which grows more bungiesome by the hour. It seems never to occur to us that price controls are totally ridiculous unless they are tied in, definitely and purposefully, with shortages, allocations, and rationing. Such controls are only to prevent selfish allocations. They cannot possibly stop inflation. For us to think so is to delude ourselves tragically.

So, no amount of excess property tax would keep the Nebraska farm in question from changing in dollar quotation from $11,000 to $25,000—which is to say, from 11,000 good dollars to 25,000 of 40- or 45-cent dollars. That is a matter for honest politics and honest economics.

Incidentally, if we should get into a "bust," as we most certainly will if we continue our merry way, the F.D.I.C. funds would be like a July snowball in their ability to stem the bank failures. We claim "we have learned how to prevent depressions," but the outlook makes any fairly hard-headed farmer wonder.

Our politicians apparently are so afraid of another depression they risk another and bigger inflation. The sad part of it is they will succeed in getting both.

Alaska. LINDELL BAGLEY.

Trees in Pasture

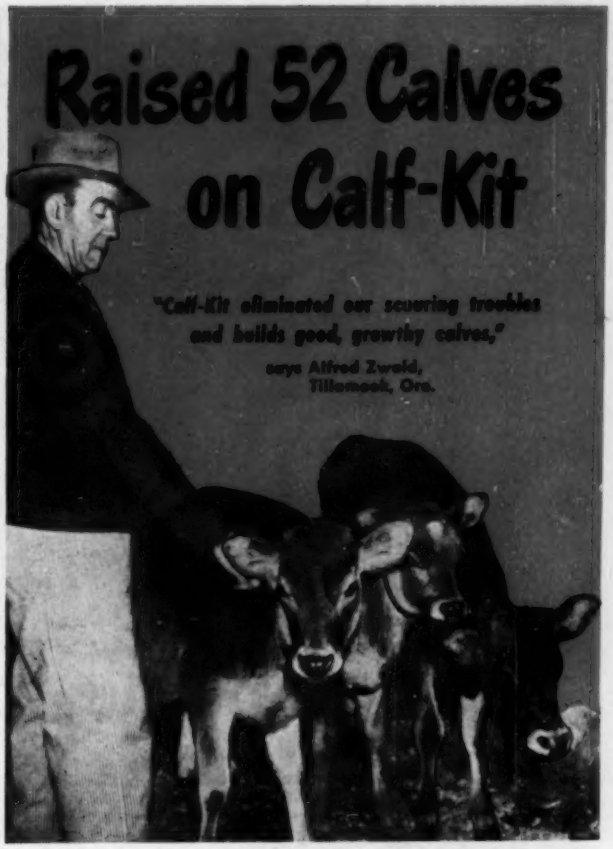
HOARD'S DAIRYMAN:—After reading and re-reading the item "Remove Trees From Pasture" under Farm Flashes on page 202 of your March 10 issue, I've been trying to decide what sort of shade producer you should advocate that we use next July and August when the thermometer is 95 degrees in the shade and the humidity in the seventies or eighties.

Four posts and some corrugated iron would do nicely no doubt, but why not leave an ash or two, a maple, an oak, or even a bit of sassafras or honey locust? Maybe hot, muggy days don't afflict Michigan or Wisconsin as they do Pennsylvania, but when they come the cows will appreciate a bit of shade as much as they will the improved pasture which the item says depends on tree removal as a first step, and why spend money to provide what nature will furnish gratis? If the trees mentioned are undesirable species, why not suggest two or three desirable kinds? Black walnut, for instance, doesn't kill the grass beneath it. The same is true of ash, though you've apparently disqualified that. Let's ask the "Michigan foresters" about it, shall we?

Remember those "Dust Bowl" scenes of the '30's? A house, a barn, a couple of outbuildings. Bare, bleak, barren, cheerless. In contrast, the charm of the farmstead on page 202, not because of the buildings but because of the trees!

A small bouquet to balance a small brickbat — your March 10 issue is very, very interesting—a good issue.

Pennsylvania. HENRY C. PICKERING.


Raised 52 Calves on Calf-Kit
"Calf-Kit eliminated our scouring troubles and builds good, growthy calves,"
says Alfred Zwald, Tillamook, Ore.

Mr. Zwald, an outstanding Jersey breeder, reports that Calf-Kit produces better calves than those raised on whole milk. His herd recently averaged 5.3% butterfat and received statewide recognition.

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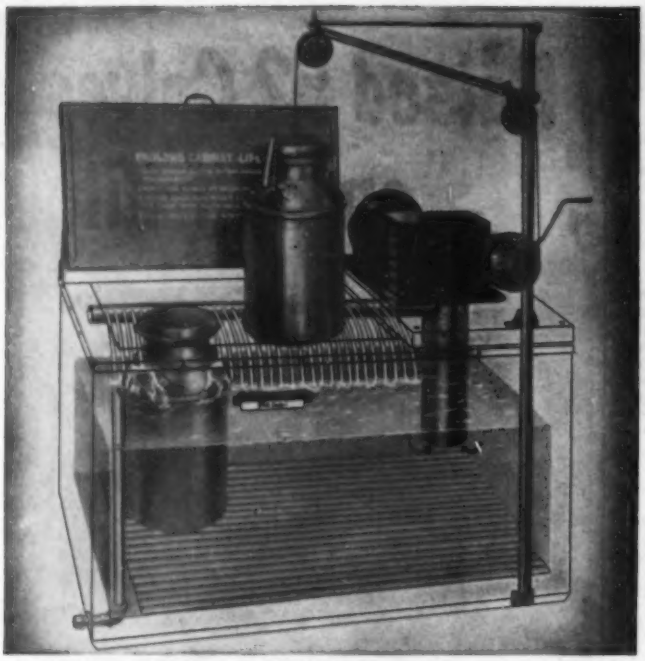

New Westinghouse Front-Door Milk Cooler for easy handling of milk cans . . . Slide 'EM IN, Slide 'EM OUT. This type is also equipped with the Hermetically-Sealed Drop-In Cooling Unit with 5-Year Guarantee on completely sealed refrigeration system.

Westinghouse offers ten Immersion-type Coolers—available in 2 to 10-can storage capacities, including the new low-priced *Cooleret*. All sizes equipped with Hermetically-Sealed Drop-In Cooling Unit that provides forced circulation to assure fast, uniform and dependable refrigeration.
Accessories: Polar-Cold® Booster Spray, which automatically assures cream-line cooling; EZ-Does-IT® Can Hoist, which saves heavy lifting.

Dairyman Cuts Cooling Cost 75%

Here's what one dairyman says—"During a six-month period, ice for milk cooling cost $93.17. Over a similar period, with a Westinghouse Cooler on the job, the metered cost was $19.87" . . . a saving of 75% of cooling cost.

In addition to lower cooling costs with a Westinghouse Milk Cooler, milk rejections are eliminated, as Westinghouse Coolers lower milk temperatures to 50 degrees in one hour. Forced circulation of the water insures both rapid and economical cooling.

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A GUARANTEE
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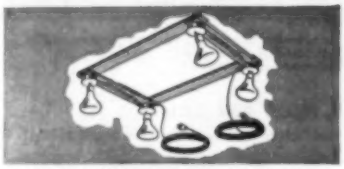
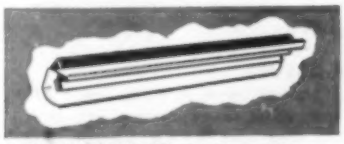
When you buy a Westinghouse Milk Cooler, you buy a Cooler made by *one* company—not an assembled job made from miscellaneous parts bought from other suppliers. We build our motor-compressor, evaporator, water circulator motor, condenser fan and fan motor, cabinets, temperature control and condenser—hence, Westinghouse assumes 100% responsibility for the equipment and its performance. You get a guarantee backed by *undivided responsibility.*

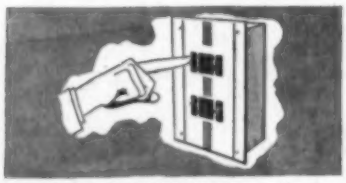
Other Westinghouse Products for the Milkhouse



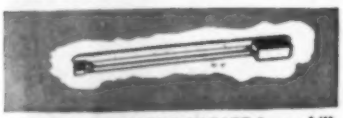
HEAT LAMPS: One or more Westinghouse Heat Lamps provide instant warmth at the washing vat. This is the lowest cost method of localizing comfort heating.



GENERAL LIGHTING: At the washing vat, soft, diffused light with 2-lamp Westinghouse Fluorescent Unit lights up seams or corners in utensils that may harbor bacteria. For general lighting, Westinghouse Incandescent Lamps and RLM Dome units are efficient.



CIRCUIT PROTECTION: For quality installations, use Bryant wiring devices and Westinghouse Nofuze Circuit Breakers for automatic protection of circuits against dangerous overloads and short circuits.



STERILAMP® ULTRA-VIOLET lamps kill air-borne bacteria, virus, mold spores; produce ozone to reduce odors; help keep all sections of room and utensils, free of contamination.

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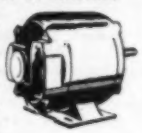
There's a Westinghouse Motor and companion control designed for every farm job. Larger motors have rugged all-steel construction and bearings pre-lubricated for life of motors to assure years of dependable, low-cost service.



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HOARD'S DAIRYMAN
Founded in 1885

The Dairyman's Dilemma

Fly Control in 1951

A sound program is needed on every farm if flies are to be controlled. Here are suggestions for this year.

by Harold Gunderson

FOR several years dairymen have been able to control flies quite effectively. They have seen the advantage of having a fly-free, quiet herd. Best of all, they have found that fly control pays off in terms of more milk production on the same feed.

During the past year or two, however, fly control recommendations have confused many farmers. Rumors of various kinds and extravagant claims by some salesmen have added to that confusion. So, in 1951, dairymen wonder whom to believe and what to use in their fly control program.

To understand the various recommendations, we first must take a clear look at the problems connected with this job of fly control. Let's start with the flies we're fighting.

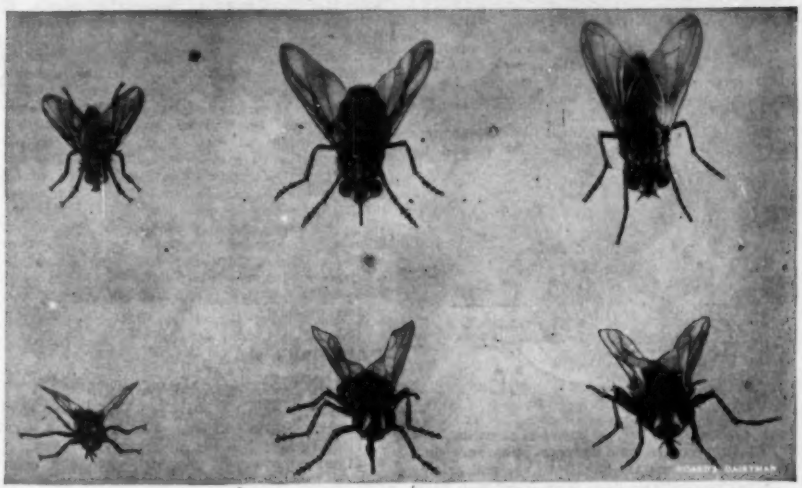
Horn Fly First to Appear

The horn fly is usually the earliest cattle pest to appear each spring, usually in May. These small, voracious flies cluster on the heads, backs, and sides of cattle — and cling there. When the cow tosses her head back, the flies take off in a swarm but settle back down promptly. Because of this habit, any residual insecticide applied to cattle, regardless of how slowly it acts, seems to give excellent control of horn flies.

Houseflies usually start to pester cattle a week or two after horn flies hit. They don't bite but crawl around, tickling the cows and lapping up serum and blood oozing from the bites of other flies. The housefly is easily scared away and therefore doesn't always stick around long enough to absorb a killing dose of a residual poison from the cow's skin.

In the north central states, the stable fly hits dairy herds hard about July 1. This fly is about the size of the house fly, gray in color, and breeds in any decaying organic matter such as wet stack bottoms or weed piles. It is worst in wet, warm years and bites viciously. The stable fly prefers the legs and belly of the cow but sits down only long enough to snatch a quick meal of blood. You'll know when stable flies attack because the herd will start kicking and stamping. This nasty habit of hitting and running makes residual poisons on the animal generally ineffective.

Keeping manure hauled is the first step in any successful fly control program. It is especially important to remove all manure piles from the barnyard early in the spring.



From left to right are the horn fly, stable fly and house fly. Note the biting and sucking mouth parts of the horn and stable flies. They suck blood from cattle causing an upset nervous condition. In contrast, note the spongy, "lapping" mouth part of the house fly . . . a spreader of filth and a serious menace around barns and milk houses.

Deer flies and horse flies are the next fly pest we'll discuss. These flies generally occur in waves, during which cattle practically go crazy. They breed in swampy, marshy areas, so sanitation practices are of little or no value. They hit the cow, grab a meal of blood, and then take off like the stable fly. Residual poisons are of little value against deer flies and horse flies. The adult flies rest in trees and brush in and near pastures.

Mosquitoes also annoy dairy herds and cost you plenty in lost production. Mosquitoes are worst in wet areas and in wet years. They are quite susceptible to most residual poisons.

So much for the insects we're talking about. You already know from experience which of these pests causes you most trouble. Every one of these flies can carry disease. Every one of them weakens your herd and robs you of production.

Use of Insecticides Limited

The second angle to the fly problem concerns the insecticides to use on the dairy farm. At present, our choice of fly killers is limited by rulings of the U. S. Food and Drug Administration. These rulings protect the public from contaminated food and I have no quarrel with them. Under the rulings, DDT cannot be used on dairy cows or in dairy barns or milk houses. Lindane can be used as a residual spray on barn walls but only on dairy cows as a single application, as for louse or scab control.

A third problem is that of resistance to the chemicals by fly populations. Flies resistant to DDT appeared in 1947, lindane-resistant flies in 1948. And those appear to be basic developments. That is, flies resistant to DDT quickly become resistant to methoxychlor. Lindane-resistant flies quickly become resistant to chlordane and toxaphene. So, unless you think through this fly control business, your control efforts can be expensive, exasperating, and ineffective.

Weather An Important Factor

A fourth problem is that of weather. Stable flies, house flies, horse flies, and mosquitoes are worst during warm, humid weather. Hot, dry weather reduces populations of these flies but increases horn fly trouble. Cool, dry weather reduces the number of breeding places and the reproductive ability of all species. So, a farmer may have good results one year and poor results another with the same chemical due solely to the effect of weather on flies.

But the situation isn't as hopeless as it might look. There are some things you can do to fight flies besides grabbing a fly swatter and beating flies to death.

First of all, we must do a real job of sanitation. We've got to forget the idea that sanitation means hauling manure once a month or once a year. Sanitation includes all of these operations: Scraping the lot down to hard ground in May (you'd be shocked to know how many stable flies emerge from each square foot of gunky barn lot); hauling out straw and hay stack bottoms in May or early June; cleaning out hen houses, hog houses, and open cattle sheds; raking up and burning (or scattering to dry out) weeds you mow (if you don't use 2,4-D) from fencerows, roadsides, and ditch banks; treating outdoor privies with borax every day; pitching barn cleanings directly into the spreader and hauling them out to the field every day or two, or storing the manure in concrete pits.

Sanitation Basis of Control

If that sounds like too much work, remember that sanitation is the basis of any fly control program anywhere. It really pays off, too. First of all, you have fewer flies emerging, mostly from the breeding places you overlooked. (And you want to control flies. Remember?) You get the organic matter from stack bottoms and weed piles and that helps you get better crops. When you haul manure frequently, you save more of the fertilizer value. So it's worth while to concentrate on sanitation, even though it won't do the whole job of fly control.

You still have to consider the chemical aspects of fly control. The day is past when one chemical used straight through the season did the job.

Methoxychlor is the best bet during cool weather on the cows and as a residual spray for inside of barns and milk houses. It will take care of horn flies, house flies, and mosquitoes until really warm weather comes along — usually in July. (I'm being awfully cautious since the 1950 winterlike weather during summer.)

Of course when you use any residual fly spray inside of barns, you'll want *(Turn to page 413)*

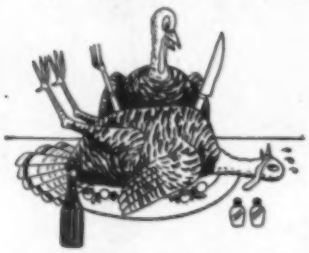
Farm Flashes . . . .

Seasonal reminders and research notes for the dairyman

TO CONTROL TURKEY CANNIBALISM

Unless control measures are taken, cannibalism in growing turkeys can cause considerable loss and trouble for the grower. It may develop at any age, has even started among poults during the first week.

While it is usually difficult to determine how the habit started, quite often it is caused by



poor management, which includes crowding, use of too few feeders and waterers, improper diet, or failure to teach the poults to eat and drink.

Numerous methods have been tried with varying success to stop the vice. One teaspoonful of salt per gallon of water for two or three days may prove helpful. In addition, anti-picking compounds or tar sometimes help when applied to the parts of the bird being picked. One of the best control measures, however, seems to be to feed fresh cabbage heads or other greens to the birds in order to keep them active and out of mischief. The fresh greens should be kept before them until the trouble has stopped, usually from a few days to a week or more. For birds more than eight weeks old, it is recommended that oats be fed to reduce cannibalism.

COCKLEBUR SEEDLINGS POISON SWINE

Cocklebur on your farm are more than a nuisance that stick to your animals and ball up in their hair. Young cocklebur plants may poison livestock, especially pigs.

A University of Illinois veterinarian says that cocklebur seedlings, in the young, two-leaf stage, are tender enough for swine to eat. And that is when they are most deadly—one or two seedlings can kill a pig.

He warns that there is danger of poisoning from now until mid-summer if you let your pigs run in pastures containing cocklebur seedlings. It would be wise then, to keep your pigs out of infested pastures until cockleburs are controlled

If you suspect that your pigs have cocklebur poisoning, call your veterinarian to give an antidote. Emergency treatment consists of giving an ounce or two of raw linseed oil, mineral oil, or lard. Even giving them cream or milk sometimes helps.

REED CANARY GRASS PASTURE

Michigan soil specialists recommend reed canary grass pasture for those wet, lowland areas along river or creek flats. It is reported that reed canary grass will produce plenty of green succulent pasture five or six months of the year. It is particularly well adapted and makes good growth on wet, fertile, mucky soils which are subject to frequent flooding.

Bromegrass is sometimes used in these areas; however, a good rule to follow is this: If one of these areas is well enough drained so that corn can be successfully grown, then bromegrass instead of reed canary grass can be grown. If it's too wet to grow corn, then reed canary grass should be grown.

At the time of seeding, 300 to 500 pounds of an 0-10-30 or a 3-9-18 analysis fertilizer should be applied, depending on how wet and how well drained the area is. A 3-9-18 fertilizer is better for wet areas. In extremely wet areas a 10-10-10 fertilizer might be used. From five to ten per cent copper sulfate should be added to the fertilizer if the soil has an acidity reading of 6.0 or below. If the acidity reading is 7.0 or above, add 10 per cent manganese sulfate to the mixture.

Recommended rate of seeding is four to six pounds per acre. Seed should be broadcast or drilled solid. A cultipacker or roller should be used after seeding so that the seed is pressed in close contact with the soil and will start to germinate quickly.

PAINTING HAS A PURPOSE

Even though paint does not keep wood from rotting, the color will change on unpainted wood and the surface will get rough and splintery. In addition, boards may cup and warp and begin pulling loose from the nails and the nails may rust and cause streaks in the lumber.

F. L. Browne of the Forest Products Laboratory says that most outside woodwork on well built buildings is not exposed to conditions that cause decay, and it is practical to let them go unpainted. To keep the boards from cupping, use boards of good thickness that aren't too wide and nail them with rust-resistant nails.

It is not practical to use only one coat of paint on old wood that hasn't been painted. It will not be thick enough and won't dry with an even gloss and color. Weathered wood, however, can be stained with one coat of good shingle stain.

In re-painting a surface that has already been painted, one coat is often enough if the old paint is not scaly or flaky. In fact it would be better if more re-painting were done in one rather than two coats, according to Browne.

RENOVATING STEEP PASTURES SAFELY

Experimental work at the University of Wisconsin has shown that bluegrass pasture on moderately to steeply sloping land can be renovated safely with a field cultivator. Soil losses from such pastures were actually less than from undisturbed bluegrass pasture and only 1/100 as much as from pasture after plowing. Water losses were also much lower from field cultivated than from plowed areas. Yield of forage was higher on renovated pasture after cultivating than after plowing.

To prepare a good seedbed with the field cultivator, they found it was necessary to start cultivation during dry, hot weather. Starting in August proved the best. It is important to set cultivators so that the first two tillages are shallow—not more than two inches deep. They had best success by making the first cultivation at an angle to the contour, then on the same day tilling on the contour. The disturbed sod was allowed to dry out. Usually that takes a week to ten days, then the double cultivation was repeated except the machine was set to till five to six inches deep. The pasture was allowed to lie over winter. One more operation, in the spring, on contour resulted in a good seedbed for grain and legume-grass mixture.

Farmers can profit by these results if they field cultivate, fertilize, and reseed worn-out bluegrass pastures. However, plowing before reseeding will expose the soil to erosion and give lower yields of forage.

DON'T PASTURE TOO EARLY

Dairymen will be milk and forage ahead if they allow pastures a chance to make good growth before turning in the cows this spring.

Early forage is high in water content and low in food nutrients. Therefore, it has comparatively little feeding value. Bromegrass-alfalfa should be from 6 to 8 inches high, and the grasses from 4 to 6 inches high for grazing.

Too early grazing may weaken the stand, resulting in poor pasture all summer. Forages need above-ground growth to strengthen root development. If grazed off too early, the forage plants never get a chance to build up strength for the season ahead. Pastures are usually wet and soft early in the season. If cows are turned in under these conditions, they will break up the turf, causing bogging.

It is best to let cows graze for only a few hours a day when first turned on pasture. At that time they should continue to be fed hay and silage, since hay prevents bloating which may be serious if there are legumes in the pasture.

Even on good pasture, cows should have access to some hay, since it makes for the most efficient use of low-cost forage.

FEEDING TREATED GRAINS DANGEROUS

Feeding left-over seed oats and barley treated with Ceresan is too much of a gamble for farmers to risk. Even though a farmer may get by with feeding small portions of treated grain, there is a chance he may lose a pig, a cow, or

some chickens. Even if it isn't fatal, the stock may not do very well on a ration including some treated grain.

The surest way to avoid trouble is to keep treated grain out of livestock rations entirely. If you have treated grain left over, you might save it for next year, use it to seed chicken yards or hog lots, or bury it.

In a Minnesota test, all hogs but two died when fed treated oats for ten days, usually going blind and becoming paralyzed before death. When the treated oats made up 15% and 30% of the ration, pigs did not show poisoning symptoms, but gained so slowly and ate so much feed per pound of gain that the use of treated grain was not economically practical.

WARFARIN EFFECTIVE RAT KILLER

The new chemical, Warfarin, developed at the Wisconsin Agricultural Experiment Station, appears to be one of the best chemical rat killers available. A 100 per cent rat kill is possible and when used in recommended dosages, there is little danger to other animals. The chemical is one of a number of chemical relatives of coumirin, which causes bleeding in cattle eating spoiled sweet clover. It kills rats by causing internal hemorrhages.

Our 14 Years With Grass Silage

This dairyman tells you his story — to show his mistakes and profits in making and feeding grass silage.

by Paul A. Montavon

Paul Montavon's cows will stretch just as far as their stanchions will let them to get a mouthful of the kind of grass silage he preserves and feeds.

EVERY dairyman who has turned his cows out on prime pasture in the spring and has seen how production soars, while the cows refuse most of the grain and hay offered them in the barn, understands better than anyone else how good roughage can really be. Unlike the cattle feeder who must wait until he sells his cattle to collect his gain, the dairyman collects his every night and morning and knows how good his feed is within a matter of hours after it has been fed. And how many of us have thought, "If only I could keep them milking that way all the year 'round, what a pleasure it would be to milk cows!"

It goes without saying that this prime pasture is the most nearly perfect dairy feed. The trouble is that we have it for only a short time every spring. Good pasture management can do a great deal to approach this ideal condition for six months of the year, but for the other six months we have to depend on hay (which is dried pasture) and silage (which is canned pasture). The trouble here is that the weather frequently interferes with hay making, particularly with first cutting alfalfa, and corn silage is too low in protein and too high in carbohydrates to be ideal dairy feed. The logical question, therefore, is "how about making silage out of regular pasture?"

That is a question which my father and I had thought about many times but had done nothing about until we had an unusually bad experience fifteen years ago — three weeks of rain on the finest crop of first cutting alfalfa we had ever raised. So for the past fourteen years we have been putting as much as possible of that first cutting hay in the silo, and we haven't lost a crop. So if a man isn't afraid to make hay he certainly shouldn't be afraid to make grass silage.

The best thing about grass silage is that it not only gives a reasonable degree of independence from weather, but it also yields considerably better feed than most hay. The cows know this. In fact, when the cows are waiting outside to get in and can smell that grass silage in the manger, we have to open the door and get out of the way, or we'd be collecting our accident insurance. It's no use trying to stand in the door and direct traffic. I've actually seen all 20 of them get into their stanchions in 30 seconds.

Grass Silage Nearest to Prime Pasture

It is only natural that this succulent feed should be more palatable than dry hay. But there's more to it than that. Even under favorable conditions 10 to 25% of the leaves are lost in curing hay, and under unfavorable conditions considerably more; and besides, you have all the other hazards to palatability, such as moldiness or stiff, dry stems. Also, from 75 to 90% of the carotene is normally lost in hay making. This is important, since carotene is the source of vitamin A, which is essential to maintaining good condition of the living membranes of the respiratory, digestive, and genito-urinary systems. Compared to corn silage, grass silage usually contains more than twice the protein and carotene, and three or four times as much calcium and phosphorus. So when it comes to quality, it is safe to say that grass silage is our nearest approach to prime pasture, since it retains the succulence and flavor of pasture, besides practically all the leaves and vitamins, and that unidentified something known as "grass juice factor."

Made Mistakes Too

The statement that in fourteen years of grass silage making we haven't lost a single crop may be slightly misleading. For with no near neighbors to learn from we made a lot of mistakes, and the silage, while it was always at least fair, was not always as good as it should have been. Our first mistake was natural enough. Afraid of getting moldy silage, we put the hay in too wet. Then we went to the other extreme and put it in too dry, so that we had moldy spots in the silage, and considerable heating. The wet silage was dark and evil-smelling, and the dry silage was brownish in color, smelled good, and was quite palatable. But we have learned since that this heating is very destructive, since it not only burns some of the nutrients of the silage but also renders it less digestible and destroys practically all the carotene.

Both of these mistakes are quite unnecessary. We have never made a moisture test of the green material going into the silo and don't intend to make any, since getting the green material into the silo at somewhere near the ideal moisture content is a matter of system and experience — not a question of knowing what the moisture content is at any given time. Obviously, you can't cut down a field of hay, dry it to the right point, and then put it all in at once. The cutting and filling operations must both be continuous, or nearly so. The main thing is knowing how far ahead of the field cutter to keep the mower in varying weather and with hay of varying moisture content.

No Simple Formula

Of course, everyone wants a formula for the operation. Unfortunately, it isn't that simple. Since the thing that warms the heart of a dairyman more than anything else is that extra can of milk, we are concerned only with making grass silage of high quality—in other words, preserving that prime pasture. Most American farmers do not cut their hay until it has passed that stage. Making silage of the grass-legume crop in the stage when the cows would give that extra can of milk pasturing on it means cutting it while it still contains so much moisture that it has to be wilted to make good silage.

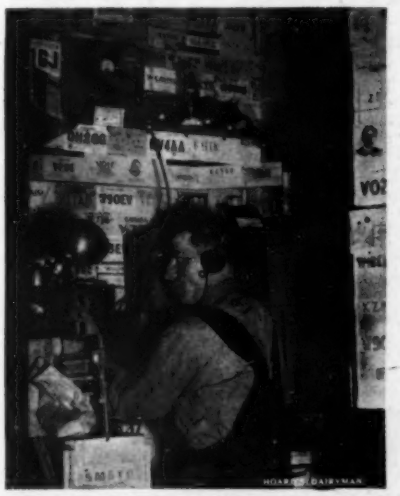
In our next issue — a very complete article on TRENCH SILOS, how to build, fill and empty them. Written by James W. Linn of Kansas.

With the alfalfa-brome-ladino mixture that is proving so popular in Northern Illinois, the hay should be cut as soon as the shoots for the second crop begin to form in the alfalfa. This is usually before much bloom appears. Wilting for two to four hours is enough in hot, dry weather but in cool, wet weather half a day or even longer may be required.

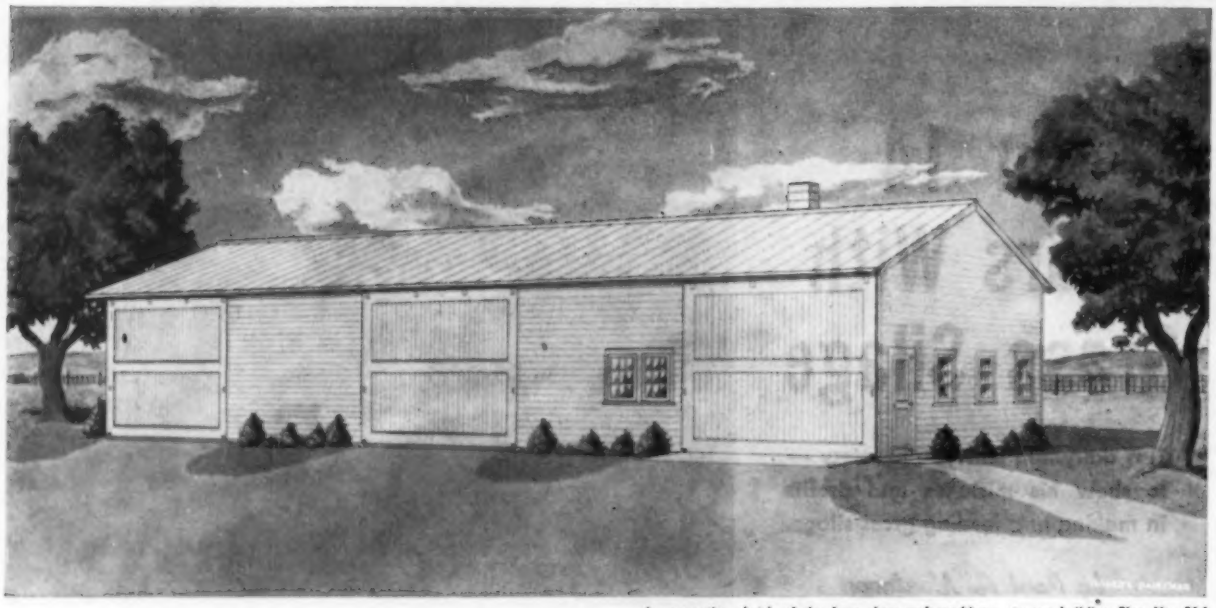
Is this early cutting hard on the alfalfa? Not half as hard on it as cutting it too late in the fall. And though you get a lower yield of first cutting hay, the yield of the second cutting will be correspondingly increased, and it will contain a larger proportion of grass — good insurance against bloat when the second crop is to be pastured.

You can figure that if *(Turn to page 412)*

The author farms 280 acres of slightly rolling land in DeKalb County, Illinois, in partnership with his father, James Montavon.



Montavon's hobby is "ham" radio. He has contacted amateurs in all 48 states and 108 foreign countries — many behind the iron curtain.



A perspective sketch of the farm shop and machinery storage building Plan No. 514

It Pays To Store Machinery Under Cover

Valuable machinery will operate better and last longer if you have a shop-shed as described here.

by D. W. Bates and L. L. Boyd

EACH year thousands of dollars worth of agricultural machinery is rendered practically useless as a result of being stored "under the stars." Untold hours are required to get machines running properly after they have "set out" for a winter. Many farm machines deteriorate more out of doors during the many days they are not in use than during the relatively few days they are in service.

Because the construction of a machinery storage, like the application of a new coat of paint on the house, is something that can be postponed for another year, it may be put off indefinitely. Rust and corrosion do not wait. They are ever present as long as unprotected metal parts are exposed to air and moisture. Frequently, too, the machinery storage is neglected because much of the machinery can be stored in the barn.

It is indeed a tragic sight to view the smoldering ruins of a barn and find in them the blackened, bent, and twisted frames of expensive farm machines often including a truck. Needless to say such machines are seldom covered by insurance.

Make It Easy to Store Machinery

Machinery is also often left out in the weather because it is too difficult to get it into a small poorly planned machinery shed or other building never intended for machinery storage. Even if machinery is put into such a building, many valuable hours are lost in getting the machines into and out of it. The result is that they are taken out in the spring and not put back until the approach of winter.

If the storage is convenient, machines are more likely to be returned to it when they are not in use. Many farm machines are mounted on rubber tires and this will mean less deterioration of the rubber due to exposure. It will also minimize corrosion to the many precision parts of modern machines.

Besides the material benefit gained from storing machinery under cover there is a matter of appearance and personal pride which many farmers take in having their machinery stored under one roof rather than having it widely scattered over the farm.

A Good Shop Can Save You Money

If you are going to the expense of building a shelter for your implements, you should have a building where they will be completely protected from the weather. An open shed into which the sun shines and into which the rain and snow blow does not furnish complete or satisfactory protection. Machines with intricate mechanisms should also be stored where birds and farm poultry cannot perch over them or where livestock cannot damage them.

The increasing number of complicated machines used on the farm makes more necessary than ever a large, well equipped farm shop where even the largest machines can be brought in and worked on in any kind of weather. In fine weather farm machinery should be in the field paying for itself and making a profit. If it is to do this it must be repaired so far as possible when the weather is unfit for field work. Preferably this should be done during the winter months when the farmer has the time to do a good job. The main reason repair jobs are required and made on many farms during the planting, cultivating, and harvest seasons is that the farmer has no suitable place to make repairs and adjustments in cold and stormy weather.

A combination machinery shed and farm shop has been designed which will provide convenient machine storage and a large, well arranged farm shop.

The primary thought in designing this building was convenience of getting machinery into and out of all parts of it. This has been accomplished by providing large doors 15'-6" wide and 12' high in both the front and the back of the building on alternate bents. Thus a tractor can be maneuvered so that machines can be pulled into and out of nearly all parts of the building. Large machines, such as a combine or hay baler, can be pulled in and the tractor driven on out through the door in the rear of the building, eliminating any need of backing machines either into or out of the building.

This also is a convenient place to shelter a load of hay that might otherwise be rained on. The necessity of convenience in a machinery storage cannot be overemphasized. It also must be recognized, however, that to utilize the total available floor space to the greatest advantage a certain amount of hand work will be necessary.

Where, because of the limitations of topography, it is not practical to build a "drive through" machinery storage, doors can be provided in only the front of the building, in which case one door should be built for each bent. Such an arrangement would make it somewhat more difficult to get large machines into and out of the building.

Building Can Be Enlarged

Because various sized farms will require varying amounts of machinery storage space, this plan has been set up so that additional space can be added in increments of two bents to the

basic plan. A bill of materials is furnished for the basic plan shown together with the material required to build two additional bents. Thus a storage of any desired size can be built from the basic plan and all materials easily determined.

In order to support the roof over a clear span of 27', a simple type trussed rafter using split-ring connectors has been designed. The trusses can all be built on the ground at one time and then be put in place with relative ease. If Douglas fir or a comparable wood is used, each truss will weigh approximately 260 pounds. These trusses are placed four feet on center and 2" x 4" nailing strips approximately two feet apart are used to support a corrugated metal roof, eliminating the necessity of a tight roof deck. The building is well braced and securely tied to the foundation.

Features a Non-Freezing Door

A rather unique type of door has been designed to eliminate the common fault of large sliding doors freezing down in cold weather. The doors extend to within four inches of the ground level. The space between the bottom of the door and the ground is closed by a 2" x 8" plank held in place on the inside of the door by two blocks. The plank need be removed only when machinery is being moved into or out of the storage. If frozen down it can be broken loose with a bar and removed, eliminating the danger of breaking the door itself.

The farm shop will accommodate any machine which will go into the storage. Such a shop makes it possible to work on the various machines regardless of weather. It also is a place where all small farm tools can be kept and the small as well as the large repair jobs done.

A good shop centralizes all repair activities and greatly reduces the tendency for tools to become widely scattered about the farm. Efficient arrangement of equipment in the various work areas makes it possible for several men to work in the shop at the same time without interfering with one another.

The vertical metal storage rack is convenient to the cold and sheet metal bench. Lumber storage is provided by the horizontal racks in the end of the shop close to the area where it will be used.

YOUR PLANS ARE READY

A set of complete plans and bill of materials are now available to Hoard's Dairyman readers. The farm shop and machinery storage building was designed by the authors who are well trained agricultural engineers.

The plans for this building are contained in four, large, 18x24-inch sheets providing in great detail all of the construction features of the building. The farmer-carpenter can build this structure easily.

The bill of materials provided with each set of plans makes it a simple matter to obtain from your building supply dealer the total cost of all construction items.

To obtain these detailed plans and bill of materials, write to Hoard's Dairyman Plan Service, Fort Atkinson, Wisconsin, and ask for Plan No. 514, Farm Shop and Machinery Storage building.

Enclose your check or money order for $2.50 for each set of plans.

A large door is provided in both the front and the back of the shop which allows the same convenience in moving large machines in and out that is afforded in the storage space. In addition to this, both doors may be opened in the summer months when repair and upkeep work is being done, increasing the natural light and providing ample opportunity for air movement through the shop during hot weather.

A small door is provided in the end of the shop eliminating the necessity of opening one of the large doors each time entrance is desired. A small door is similarly provided between the shop and the storage space to allow free access to that part of the building in winter weather when it may not be desirable to open one of the large doors.

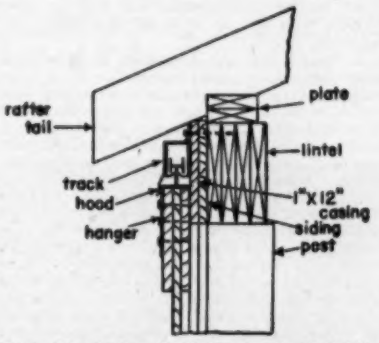
A Warm Place to Work in Winter

Because machines are not likely to be in the shop for extended periods of time, the shop can be considered a garage for the truck. A coal or wood stove can provide economical heat, making it possible to work in the shop during the coldest weather. Warm storage may mean the difference between starting or not starting the truck on a cold morning. If a forge is desired in the shop, it can be connected to the chimney for the stove as shown.

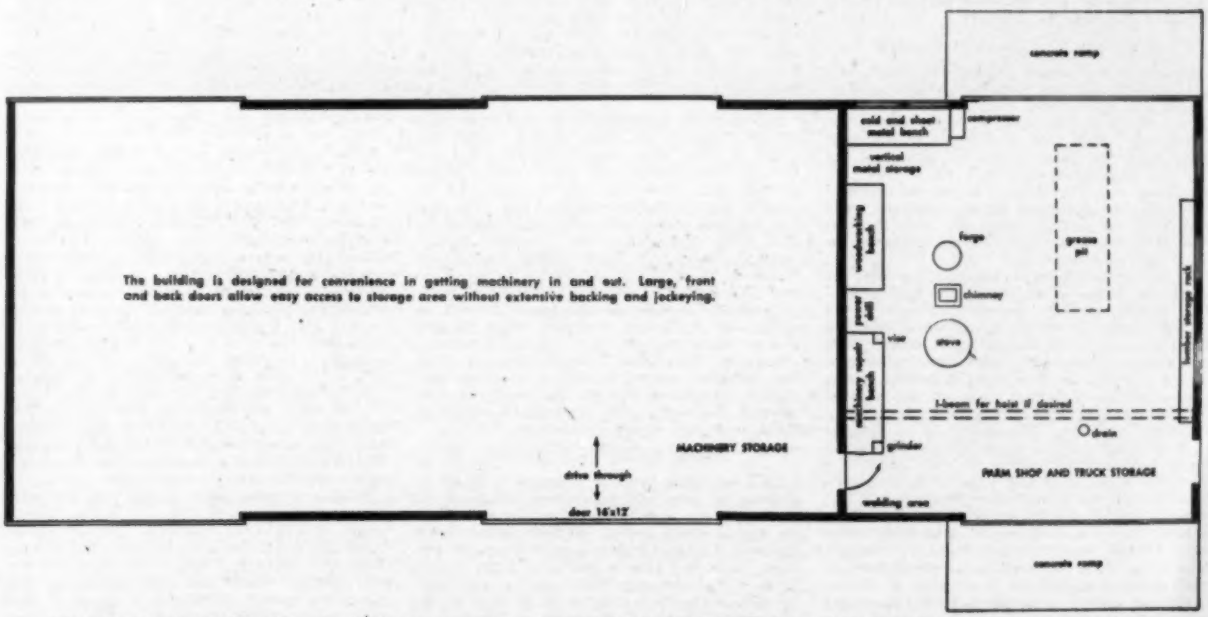
A beam has been designed which will accommodate a one and one-half ton hoist. The hoist is a very necessary part of a well equipped shop. The beam is located 8' from the front of the building and is parallel to it. Because of the space available in the area under the beam, a car or tractor can be maneuvered to a position where the longitudinal axis will be under the beam allowing the hoist to be moved back and forth over it. This places the motor in the nearest proximity to the work bench and small tool area. Normally, a machine would be driven in the back door and under the hoist so that the hoist could be moved back and forth at right angles to the long axis.

The grease pit shown as optional simplifies working on the underside of a car or truck as well as on various pieces of farm machinery. When not in use the grease pit can be covered with two-inch planks. A drain is provided in the floor to carry off any water which may result from melting ice or snow on machines brought in.

The well equipped farm shop may avoid a delay of many precious hours in haying or harvest time due to a breakdown of one of the machines which would require a "trip to town" to repair were it not for the shop. A prosperous farmer cannot afford to be without one. **THE END**



Typical of the detail provided in the plans for this building is the above cross section, which shows construction features at the top of a storage area door in shed part of building.



Note in this floor plan simplicity of layout and yet utmost convenience, not only in being able to drive through the storage area but through the shop, too. As shown, the structure is 80 feet long and 28 feet wide, with the alternative possibilities of providing additional storage bents as they may be required on a particular farm.

Here they are . . . .

The Winners of your

KENNETH BOLAND
Junior Winner

WILLIAM H. BASSE
Senior Winner

O. R. TRIPP
Vo-Ag Winner

IT IS with a great deal of pride that we present the winners of the 21st Annual Hoard's Dairyman Cow Judging Contest that brought entries from every state, from Canada, and South America. Competition was keen in every division, with a total of 66,680 individuals participating.

We regret that the temporary mail embargo went into effect at the time reprints were being mailed, thus preventing many from getting their entries in on time. It was also unfortunate that adverse weather conditions prevailed throughout much of the Midwest during March causing many schools to close and curtailing mail service, thus delaying many entries beyond the deadline.

We extend our heartiest congratulations to the winners who are widely scattered throughout the country. Oklahoma, Texas, North Carolina, Wisconsin, Ohio, and Missouri all have first prize winners. Undoubtedly the cash prize winner from the greatest distance is a Brown Swiss breeder from Quito, Ecuador, South America. He is Pablo Thur De Koos, who won sixth place in the senior division. De Koos and several other South Americans, including Ecuadorian President Galo Plaza and his two sisters, entered the contest with M. B. Nichols, former extension dairyman in Washington State now attached to the American Embassy in Ecuador.

Senior Winner Entered 21 Contests

Winner in the senior division with 490 points is 65-year-old William H. Basse, Waukesha, Wisconsin, who has entered every Hoard's Dairyman Cow Judging Contest since it began twenty-one years ago. Born and reared on a Wisconsin dairy farm, Mr. Basse owns a 160-acre farm and has had registered Guernseys since 1908. On continuous test since 1916, the herd has averaged over 400 lbs. butterfat for the past 12 years with 28 in the milking string. Mr. Basse has had two cows that held the Wisconsin record for long time production.

A reader of Hoard's Dairyman for over 45 years, Mr. Basse reports that he became personally acquainted with former Governor W. D. Hoard, founder of the magazine, while attending the University of Wisconsin short course from which Basse graduated in 1908. The family, consisting of three children, ranked twelfth in the family division. Daughter Ruth and her husband help operate the home farm; Robert is a junior, majoring in dairy husbandry, at Oklahoma A & M where he was a member of the college dairy judging team last fall; while Alvin is a senior in high school and plans to go into partnership with his father after graduating.

Although he had the same score on placings, second place winner James N. Whitcomb, Burnside, Illinois, ranked below Basse on reasons. Winner of sixth place in the senior division in 1948 while attending the University of Illinois, Whitcomb now is in partnership with his father on a purebred Holstein farm. He spent 10 years in 4-H club work and 4 years in FFA.

A two-way tie for third place was broken on the basis of reasons with Fred Wallace, Beloit, Wis., having the edge on Billy Bowers, Springfield, Mo. Fifth place winner was George C. Fry, Silver Spring, Md., followed by Pablo Thur De Koos, Quito, Ecuador; Mrs. O. L. Nedbalek, West, Texas; Owen Watkins, Portland, Ind.; Robert Felter, Delmar, N. Y.; Frank Dubbs, Fredericksburg, Penn.; Bob Diehl, Rich Hill, Mo.; and Ed Augspurger, Leonardsburg, Ohio.

Six Juniors Tie For First Place

With six juniors having a score of 488, it was necessary to have all of them place the classes again on how they thought they should rank on breed type and general appearance, mammary system, dairy character, feed capacity, and constitution. Best score on reasons was made by 16-year-old Kenneth Boland, son of Mr. and Mrs. Clyde J. Boland, of Dale, Oklahoma. A sophomore in the Dale High School, Boland had a 15 point edge on 11-year-old John Prior, Macomb Settlement, Rosier, New York.

Boland, coached by Wesley Hobbs, has been an honor student for each of the ten years that he has been attending school. He lives on and helps to operate a dairy farm with his father, where they produce Grade A milk. A member of the Dale FFA Chapter, Kenneth is in his second year of vocational agriculture and has dairy, swine, corn, and peanut production projects. He has participated in local chapter dairy judging contests before, but this was his first try in a major contest.

Bob Barrows, Marathon, N. Y., was third place winner, followed by Trudy Wilbur, West Hill Comb & Corn Club, Winsted, Conn.; Fletcher Gift, Halstad, Minn.; and R. T. Miles, Siloam Springs, Ark. There was also a six-way tie for seventh place with Cecil Miller, Viola, Wis., having the best reason score. He was followed by Byrl Keim, Myersdale, Penn.; Clarence Sprang, Ashland, Ohio; J. T. Dyer, Carter, Okla.; Leon Nedbalek, West, Texas; and Orville Garrett, Central City, Neb.

Honorable mention in the junior division include: Wade Benson, Findlay, Ohio; Douglas Bruce, Marathon, N. Y.; Ronnie Holtsberry, Jonesville, Mich.; Keith Davis, Pawnee City, Neb.; Bob Hunsaker, Greenville, Ill.; Terry Plab, Mascoutah, Ill.; Larry Stroup, Canyon, Tex.; John Silveira, Turlock, Calif.; John Slater, Fredonia, Penn.; and Jack Marxsen, Schuyler, Neb.

Vo-Ag Winner From Missouri

In a very close race for champion judge in the division for vocational agriculture instructors, O. R. Tripp, veteran of 18 years teaching agriculture at Aurora High School, Missouri, edged E. L. Goodwin, Carter, Oklahoma, on the basis of reasons. Both had 482 on placings. Tripp got his B. S. degree in agriculture from the University of Missouri in 1924, and his M. E. in 1939. An experienced judge of all classes of livestock, he was high man in beef cattle at the International Livestock Exposition while a member of the college judging team. For several years he has served as judge of the student judging contest at the Missouri State Fair. Since buying a dairy farm last summer he has started a herd of registered Jerseys and Duroc hogs.

Second place winner, E. L. Goodwin, has made an enviable record as a coach of judging teams since an FFA Chapter was started at Carter High School in 1948. As a result of winning two state contests, the chapter has represented Oklahoma in two National Dairy Judging Contests, placing 4th and 10th. They are this year's high school winner, after having won second place in the 1950 contest. Goodwin stated that he feels the Hoard's Dairyman Judging Contest is one of the best teaching aids available. Since there are not a great many dairy cattle in his immediate area, about 80 per cent of his coaching of dairy judging teams is done by the use of Hoard's Dairyman picture classes. A veteran of 4½ years in the infantry, Goodwin served as captain on the staff of the 379th Inf., 95th Div. in the E. T. O. He was a member of the Carter High School dairy team in 1935, 36, and 37, and a member of the Oklahoma A & M dairy cattle judging team in 1940. He has three registered Jerseys.

Honorable mention in the Vo-Ag division include: R. L. Mahaffey, Seymour, Mo.; Francis Secrist, Afton, N. Y.; O. L. Nedbalek, West, Texas; Walter Lindman, Newport, Wash.; Forrest Kallenbach, Plainfield, Ill.; and Amos Harold, Covington, Ind.

Texas Family Wins

First place winner in the family division is the O. L. Nedbalek family, West, Texas. With an average score of 482.6, Mr. and Mrs. Nedbalek and son, Leon, had a three-point lead over the runnerup, the Owen Watkins family of Portland, Indiana.

Nedbalek, who was an honorable mention winner in the Vo-Ag division, is a graduate of Texas A & I College, where he was a member of the college dairy judging team. From 1943 to 1946 he was Soil Conservationist with the USDA in Oklahoma, and since then has taught vocational agriculture in Texas. He reports that he always uses the Hoard's Dairyman contest for practice judging when selecting his dairy judging team.

Leon, first year student in vocational agriculture, is a member of the FFA dairy judging team and placed eleventh in the junior division. Mrs. Nedbalek was seventh place winner in the senior division with a score of 486.

Winner of third place is the Tom Dellinger, Sr., family, Crossnore, North Carolina, with a score of 476. The following families receive honorable mention: Lester Wallace, Beloit, Wis.; Bob Gray, Holland, Texas; H. D. Ozment, Cathlamet, Wash.; Melvin E. Barnes, Licking, Mo.; Ed Augspurger, Leonardsburg, Ohio; H. C. Kennemer, Springfield, Mo.; and William H. Basse, Waukesha, Wis.

21st annual cow judging contest

4-H CLUB WINNERS

Here are the top 4-H judges in this year's contest. Standing, left to right: Ralph Butler, George Logan and Eddie Thompson. Seated, left to right: Joe Hall, Donald Owen, Lois Owen and Ruth Phillis. These 4-H members hail from Warren, Ohio, and are members of the "Good Kow Growers" club. Donald Owen is president of the club this year. He and his sister, Lois, have been in club work for several years and have shown calves at Ohio State Fair. Jim Thompson is now managing a dairy farm.

HIGH SCHOOL WINNERS

These are the winners of the high school division of the contest. Seated left to right: E. L. Goodwin, coach; Don Smith, Douglas Hacker, Jack Smith, Gene Dalton and Rex Ford. Standing, first row: Darrell Watson, Marion Cooksey, J. T. Dyer, Eldean Stringer, Larry Back, Wayne Felton. Second row: Edward Ormand, Harshel Clift, Ollie Lynch, Farrell Ramsey, Joe Street, Glen Broddrick, Richmond Hawkins, Gene Clark, Archie Jenkins. Third row: Farrell Witherspoon, Clifton Jackson, Edward Dyer, Douglas Britton, Jay Preskitt, Clifford Bilbrey, Bob Ridley, Willy McKay, Floyd Barnett, Leland Woolsey.

FAMILY WINNERS

Here are the winners of the family division of the 1951 cow judging contest—Mr. and Mrs. O. L. Nedbalek and son, Leon, of West, Texas. Mr. Nedbalek is a teacher of vocational agriculture in the West High School, Texas. Leon is a first year student in vo.-ag. and a member of the FFA dairy judging team, and ranked 11th in jr. division.

COLLEGE WINNERS

These animal industry students from North Carolina State College walked off with top honors in the college division of the contest. Left to right, front row: Donald S. Fincher, Chas. V. Bryan, John C. Blair, Jerome Heller, Albert Atwood. Second row: J. C. Little, J. E. Kittrell, Wayne Brooks, R. H. Bryant, F. L. Colton. Coach T. B. Bentley (inset).

Ohio 4-H Club Champion

Out of the 798 4-H Club entries from 40 states and Canada, first place went to the Good Kow Growers, Farmdale, Ohio. This five-member team had an average score of 464, nearly five points more than the Montgomery County Jersey Calf Club, Rockville, Maryland, whose leader is Robert Stiles.

Leaders of the Good Kow Growers are Ralph Butler and George Logan. Both men were members of the 1933 county judging team that won second place in the Ohio State 4-H dairy judging contest. Mr. Butler now has a purebred Guernsey herd that averages over 400 lbs. butterfat while Mr. Logan has a purebred Holstein herd.

All of the members of the team have dairy projects and Donald Owen is club president.

The next six ranking clubs and their leaders, all with scores averaging more than 429: 4 Leaf Clover, Stevensville, Md., Charles Chance; Wilcox Livestock Club, Colfax, Wash., Joe Hodge; North and South 4-H Club, East Granby, Conn., Mrs. L. Wilcox and Mrs. H. Root; Silver Lake Dairy Club, Silver Lake, Wash., Margaret Woodard; Topsfield 4-H Dairy Club, Topsfield, Mass., Arthur Clark; and Montgomery County 4-H Holstein Calf Club, Clarksburg, Md., Irving King.

Carter High Top High School

As was mentioned earlier, the Carter High School, Oklahoma, won first place in the high school division in which 1,330 schools from every state except Nevada participated. Coached by runner-up in the Vo-Ag division, E. L. Goodwin, Carter High won second place last year. With an average score of 468.6, they had a 3-point lead over the second place winner, Grenville High School, New Mexico, coached by Bosko Krivokapich.

Next in line and their coaches are: Nauvoo Community High School, Ill.; M. A. Crary; Guymon High, Okla., Robert Meisner; Dale High, Okla., Wesley Hobbs; St. Charles High, Ill., Wm. G. Marshall; Marked Tree High, Ark., Oscar Holt; Bledsoe Co. High, Tenn., R. K. Hudgins; Springfield High, Mo., John Kirby; Frederick High, Md., H. L. Price, Jr.; Licking High, Mo., Melvin E. Barnes; and Clinton High, Wis., L. W. Beadle.

North Carolina Wins College Award

With just 35 points spread between the top 34 teams, competition was especially keen in this division. One of the 10-man teams from North Carolina State College, coached by Prof. Thomas Bentley, won first place with an average score of 455.6, topping the division which consisted of 152 teams from 62 colleges in 37 states and Canada. North Carolina teams also ranked seventh and tenth.

For the second consecutive year, a Western Illinois State College team, coached by Loren K. Robinson, Macomb, Ill., was runnerup. Their average score was 454. Teams from that college also placed fifth, sixth, and eleventh. Third place winner was Cornell University, coached by George W. Trimberger, official judge of the Holstein class last year, while Ohio State University, coached by Harold Kaeser and W. J. Brakel, placed fourth. The University of Maine, coached by H. C. Dickey and H. H. Brugman, was eighth and ninth, while Iowa State College, coached by Art Porter, was twelfth.

THE END

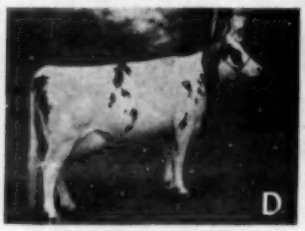
- - Here's how the cows were placed - -

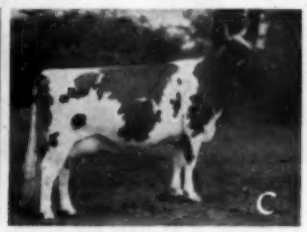
HOLSTEINS—Here are Harvey Swartz's reasons for placing the Holsteins **C D A B:**

To me it is easy to recognize C as the top cow. Besides having more breed character than any cow in the class, she has outstanding style about her head and carries a lot of strength and smoothness throughout. She has a tremendous advantage over D in depth of fore and rear rib as well as in spring of rib. Even though C seems a little coarse over her shoulders, she blends into her body much nicer than D. C has more width across her hips and rump than D. She also has an advantage in veining, width of rear udder, rear attachment, and floor of udder. C also has more length of udder than any cow in the class.

D over A was a rather close placing. D has more overall length, faulting A for being a shorter cow throughout. I feel D shows more dairy character than any other cow in the class, as evidenced by her long, slender neck. D has a definite advantage in fore attachment of udder, while their rear udders are very close. Again D has an advantage in having more style and flash about her head.

In the last pair, A is superior enough in body conformation to overcome the advantage that must be granted to B in fore udder. A carries far more depth of fore rib than B, also has a big advantage in rear udder, faulting B for showing some unevenness in the balance of rear quarters. A shows stronger in her loin than B, which shows a little weakness in that respect. However, I do like the front attachment on B as well as any cow in the class. Due to her lack of depth of fore rib, weakness in loin, poor rear attachment of udder, and unevenness of rear quarters, she seems to me a logical bottom in the class.



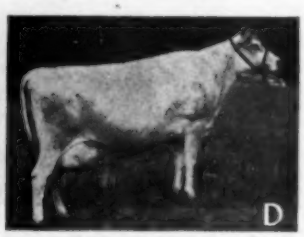


AYRSHIRES—Gordon Cairns placed the Ayrshires **A B D C.**

I placed A over B and at the top of the class because she is the outstanding cow in the class. She shows more style, balance, and capacity of body. Her neck blends more smoothly into the shoulders than B's. She is fuller in the crops and has a greater spring of rib, is wider in the chest, barrel, and loin, giving her a greater body capacity than B. A's udder is more evenly balanced, is more level on the sole, and extends farther forward with a stronger fore attachment. She is also more evenly balanced in the rear quarters of her udder. A is also smoother at the tailhead and straighter on the hind legs than B.

B was placed over D because she shows more dairy character, length of body, and capacity of udder. B is longer of neck, deeper of chest, and longer of body with greater width through the thurls and pins. B's udder is attached higher in the rear, is smoother between the rear teats with a more uniform placement of teats. On the other hand, D has straighter hind legs and is fuller in the crops.

D was placed over C because of balance of body and udder. She is smoother through the shoulder, fuller in the crops, and has a greater spring of rib. Her udder shows more capacity and balance with a higher and wider rear attachment, a more level floor, and extends farther forward with a more even teat placement. C must be given credit for having greater depth of heart.



JERSEYS—J. W. Rupel placed the Jerseys **A B C D.** Here are his reasons:

A is placed over B because she is cleaner cut in head and neck and is less throaty than B. Her neck blends more smoothly to the body and her ribs are wider spring. Her udder is more nearly level on the floor and shows greater width at its rear attachment.

B is placed over C because she follows the general type of A more closely, excelling in general body balance and levelness of topline. B is longer in the body, stronger in the back and loin, and more nearly level in the rump. C is credited with greater width of rear udder and more veining on the udder.

C is placed over D because she shows more milkiness with greater capacity of both body and udder. C shows more dairy and breed character in clean cutness of head and neck and in development of mammary and udder veining.

D is placed last because of her stale general appearance, her lack of spring of ribs and her rather narrow and somewhat low rear udder attachment.

BROWN SWISS—J. P. LaMaster gave the following reasons for placing the Brown Swiss **D C A B:**

The excellent balance of parts makes D the outstanding cow of this class. More refinement with some lack of capacity sets A up as the problem individual. D is placed over C because she is larger and shows more symmetry, capacity, and veining of udder, sharpness of shoulders, smoother blending of neck with shoulders, and a broader, more nearly level rump with less coarseness at the tailhead. However, C shows a longer, more clean cut neck, with more effeminate character about the head.

C is placed over A because she shows a more attractive general appearance and balance, her udder is less cut up between quarters, is less tilted, and her teats are of more uniform and desirable size. C is wider in the rump, has higher pin bones, and although slightly wry in tail setting is much smoother in tail setting than A. C has a wider spring of rear ribs and fore ribs and a deeper chest, shows a better balanced proportion in the length of head, and is more desirable in set of hind legs with more quality of leg bone.

A is placed over B because she shows more dairy character, her udder is larger, more firmly attached, and shows more veining. A has a straighter back, wider, broader loin, sharper shoulders, and less coarseness about the head than B. Although B is large of body, has a smooth rump and a good set of legs, she is placed last because of her coarseness about the head and neck, her weak back, and poorly balanced udder with weak attachments.

- - Here are the judges who placed them

HARVEY SWARTZ

GORDON CAIRNS

I. WALKER RUPEL

J. P. LA MASTER

C. R. HUSTON

Official judge of the **HOLSTEINS** was **Harvey Swartz**, nationally known showman from Wisconsin. One of the official judges for the selection of All-American Holsteins for the past several years, Swartz has judged numerous county and state shows in the United States and Canada.

During his many years on the show circuit Swartz had charge of such herds as the Wisconsin State Institutional show herd, the Franlo Holstein herd that had both junior, senior and grand champion males and females at the 1940 National Dairy Show; the famous Judd's Bridge Brown Swiss herd in 1942; and many others.

For the past 25 years Harvey has posed cattle at a great many national sales and dispersals in the United States and Canada. He owns and operates a Wisconsin Holstein farm with two brothers on which he was born and raised. The herd was started by their father some fifty years ago.

The **AYRSHIRE** judge was **Dr. Gordon M. Cairns**, new Dean of Agriculture at the University of Maryland where he has served as head of the Dairy Department since 1945.

Well known throughout the nation in college and judging circles, Dr. Cairns is a graduate of Cornell University where he was associated with the Extension Service and Animal Husbandry Department following graduation. From 1939 to 1945 he served as head of the Department of Animal Industry at the University of Maine.

A native New Yorker, Dr. Cairns won many honors in 4-H club work while helping operate his father's dairy farm. During the past several years he has judged numerous state fairs, including the Brantford Champion Dairy Show in Canada, and has coached several University of Maryland dairy judging teams.

The **JERSEYS** were placed by **Dr. I. W. Rupel**, who has been head of the Dairy Husbandry Department at the A. & M. College of Texas since 1945. An official classification judge for the American Jersey Cattle Club, Dr. Rupel has judged all breeds of dairy cattle at state and regional shows including the National Fair of Guatemala.

Reared on an Indiana farm, he graduated from the University of Illinois where he was a member of the dairy cattle judging team. For 21 years he was a member of the dairy husbandry staff at the University of Wisconsin, during which time he coached teams that competed in 14 National Dairy Show contests and 18 judging events at the National Dairy Cattle Congress. For more than 15 years he was a member, and for a number of years chairman, of the American Dairy Science Association Committee on Rules for the National Collegiate Dairy Judging Contest.

Dr. J. P. LaMaster, head of the Dairy Department at Clemson Agricultural College and the South Carolina Agricultural Experiment Station since 1920, judged the **BROWN SWISS**. In addition to judging numerous state and regional shows, he is on the Approved list of judges for The American Guernsey Cattle Club and The American Jersey Cattle Club.

While attending the University of Kentucky he was a member of the winning dairy judging team at the 1911 Chicago National Dairy Show, also won honors judging saddle horses and fat stock. Following graduation his employment included the following: Dairy Extension Field Representative for USDA; Extension Dairy Specialist in Georgia; Dairy Specialist for USDA in Southern States; Extension Dairy Specialist at Clemson; and later head of the Dairy Department. He was born and raised on a Kentucky livestock and tobacco farm.

Official judge of the **GUERNSEYS** was **C. R. Huston** who, since graduating from Ohio State University in 1925, has been connected with the well known Franchester Farms in Ohio, where he is now manager. In addition to having one of the outstanding Guernsey herds in the nation, numbering 170 head, they have 90 head of Herefords and some 250 registered Berkshire hogs.

On the Approved list of Guernsey judges, Huston served as associate Guernsey judge at the 1950 National Guernsey Show and the International Dairy Exposition. For many years he has judged state and regional shows for Holsteins and Brown Swiss, as well as Guernseys. Born and raised on a Guernseys dairy farm in Ohio, he worked as a tester for nearly a year before entering Ohio State University where he was a member of the dairy judging team in 1925.

COW JUDGING CONTEST SCORING KEY

HOLSTEINS C D A B

C D A B—100	D C A B—90	A C D B—82	B C D A—57
C D B A— 90	D C B A—80	A C B D—68	B C A D—48
C A D B— 86	D A C B—76	A D C B—72	B D C A—47
C A B D— 82	D A B C—62	A D B C—48	B D A C—78
C B D A— 76	D B C A—56	A B C D—44	B A C D—34
C B A D— 72	D B A C—42	A B D C—34	B A D C—24

AYRSHIRES A B D C

A B D C—100	B A D C—90	D A B C—78	C A B D—54
A B C D— 92	B A C D—82	D A C B—64	C A D B—48
A D B C— 84	B D A C—74	D B A C—68	C B A D—44
A D C B— 80	B D C A—50	D B C A—44	C B D A—38
A C B D— 78	B C A D—58	D C A B—40	C D A B—32
A C D B— 72	B C D A—42	D C B A—30	C D B A—22

JERSEYS A B C D

A B C D—100	B A C D—94	C A B D—74	D A B C—50
A B D C— 92	B A D C—86	C A D B—56	D A C B—40
A C B D— 90	B C A D—78	C B A D—48	D B A C—44
A C D B— 72	B C D A—54	C B D A—44	D B C A—28
A D B C— 74	B D A C—62	C D A B—32	D C A B—24
A D C B— 64	B D C A—46	C D B A—26	D C B A—18

BROWN SWISS D C A B

D C A B—100	C D A B—90	A D C B—74	B D C A—38
D C B A— 88	C D B A—78	A D B C—54	B D A C—30
D A C B— 92	C A D B—72	A C D B—64	B C D A—28
D A B C— 72	C A B D—42	A C B D—34	B C A D—10
D B C A— 68	C B D A—40	A B D C—24	B A C D—12
D B A C— 60	C B A D—30	A B C D—14	B A C D— 2

GUERNSEYS B C D A

B C D A—100	C B D A—94	D B C A—82	A B C D—28
B C A D— 82	C B A D—76	D B A C—58	A B D C—22
B D C A— 94	C D B A—82	D C B A—76	A C B D—22
B D A C— 70	C D A B—52	D C A B—46	A C D B—10
B A C D— 58	C A B D—46	D A B C—28	A D B C—10
B A D C— 53	C A D B—34	D A C B—22	A D C B— 4

GUERNSEYS—Here are C. R. Huston's comments on the Guernsey class. His placings, **B C D A:**

The student or breeder placing this class will, after a quick look, immediately find himself on the "horns of a dilemma." This dilemma is caused by the great depth of flank and dairy look of D and A, as contrasted with some thought of shallowness and roundness in B and C. No one likes a shallow bodied, fragile cow and it is only after you satisfy yourself that B and C are not particularly shallow, that this class falls into place with any amount of satisfaction.

In starting this class with B, I consider her superior to any other in the group in general appearance, breed type, and mammary system. She has an attractive head, a lean neck, and a smooth blended junction between neck and shoulders. She has enough depth and width in her chest. Her top is straight and her rump is broad and level. Her udder is outstanding in that it is firmly attached both fore and rear with very nice veining. There is some tendency toward cross quartering, but this is not a great fault and is less noticeable because of her excellent teat placement.

Following the type established by B, C drops into second place for some of the same reasons. She doesn't have quite the length of neck or the smoothness in junction of neck and shoulders, but shows greater depth of chest. The point of her shoulders is a little more prominent. The rumps on both B and C are unusual in width and length and there is some indication that C is smoother at the tailhead and wider through the pins. C doesn't have quite the fore attachment or symmetry of rear udder that is found in B. She is not as straight in her hind legs.

In placing C over D there are some admissions that have to be made. The unusual depth of body on D and her dairy character as shown by her sharpness throughout, cannot be denied. However, she is not as good at the point of her shoulders and probably not as broad in the floor of her chest. Her rump does not have the width, length, nor smoothness of C. She is not as wide in the pins and carries more set in her hind legs and pasterns. Her udder has let loose in its rear attachment and is rounding and bulbulous in the fore attachment.

D and A are of somewhat the same general type and make-up, with A not having quite the class and finish of D. A is not as sharp at the chine nor as deep in the chest as D. She carries a great depth of rib but not the length of body. She is not as smooth or level in the rump. Her rear attachment has let her udder down quite aways and she doesn't have the rear udder of D. She is some better than D in her hind legs and in the set of her pasterns.

Good Pastures Don't Just Happen

Select mixture adapted to your area . . . rotate . . . use nitrogen . . . renovate permanent pasture . . . sow sudan.

by F. V. Burcalow

A good pasture might be defined as a mixture of grasses and legumes, rich in proteins, minerals, and protective vitamins and of such growth that cattle may graze their fill in a relatively short period of time. With the possible exception of reed canary grass, there is no one crop that will provide continuous grazing throughout the growing season. In order to have good pasturage available throughout the grazing season, a series of pastures must be available so that by rotational grazing the pastures can be managed in such a way that abundant feed will be available at all times. A carefully planned pasture program will do much to eliminate the usual hot weather slump in milk production.

Mixtures must be used which are best adapted to the particular local conditions. In many parts of Wisconsin a mixture of alfalfa, bromegrass, and ladino clover will be most productive. In the East and Northeast, orchard grass may do considerably better than brome. In other areas lespedeza is a better adapted legume and in the deep South combinations built around crimson clover or Louisiana white clover and winter cereals will be most productive. Build your pasture mixture from a combination of grasses and legumes that are best adapted for your particular conditions. Consult your county agent and let him help you choose.

If rotational and managed grazing are to be practiced, it is necessary to have a number of pastures or fields that can be used. Four, five, or even six fields are necessary for best results and they should be large enough to provide ample supplies of good pasture for periods of ten days to two weeks at a time. Such an arrangement will permit periods of four to six weeks for recovery growth. One or more of the pastures may not be needed in the early part of the season and this growth can be used for hay or grass silage. Plan for a surplus of pasturage but also plan to harvest seasonal surpluses. This is easily possible when five or six fields are used. Successful grassland farming is based on the flexibility of an increased acreage of grass-legume mixtures that can be used as needed for pasture, for hay, or for grass silage.

Use of Nitrogen in Pasture Improvement

An abundance of available nitrogen in the root feeding zone of the soil is necessary for an early vigorous growth of pasture plants, for a high protein content, and the dark green color that is indicative of good nutrition. Nitrogen is made available by the application of commercial nitrogen carriers, fixation by legumes, or the decomposition of organic matter.

Commercial nitrogen, applied annually as a top-dressing in the early spring to good grass on soils well supplied with moisture and other plant foods, will greatly increase production for a period of two or three years or until the other required plant foods are depleted to the point where they become limiting factors for increased production. The benefits and possibilities of such applications of commercial nitrogen to bluegrass are restricted by drouth and high soil temperatures because bluegrass just quits growing when soil temperatures get too high as they normally do during the hot, dry periods of the summer.

Because of these limitations and restrictions on the annual applications of commercial nitrogen on permanent pastures, this practice should not be considered as a continuing program in a long time improvement plan. Rather, it should be considered as a supplement or an aid to getting a long range program of renovation started in which legumes will provide the bulk of the needed nitrogen in the production of good pastures. Nitrogen applied to drouthy hillsides may result in a darker green color to the grass but very little increased production of feed.

Renovation of permanent pastures and an increased acreage of grass legume mixtures are the basis of a long time pasture improvement and feed production program. The accompanying diagram illustrates a plan based on treating pasture as a crop in a long rotation of one year of grain and three, four, or more years of a grass legume mixture that can be used as needed for pasture, hay, or grass silage.

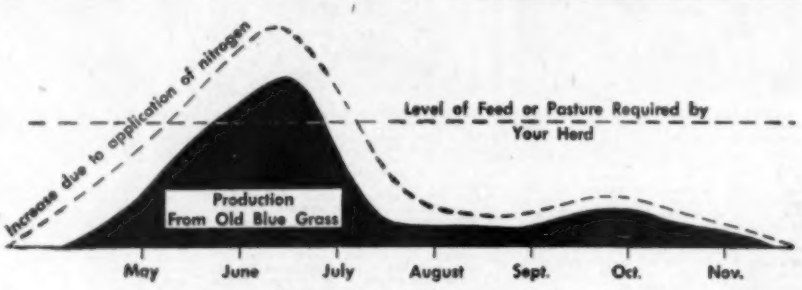
Renovation of permanent pastures or of old grassy meadows is based on the working of necessary lime and fertilizer into the soil. Then disking and digging the old sod so as to eliminate the grass or to set it back enough to get a seeding of grasses and legumes established by reseeding.

Steps in Renovation

1. Test the soil.
2. Apply required amounts of lime and fertilizer.
3. Disk and dig—start in late summer or early fall after the lime has been spread; continue at intervals of two weeks until freeze-up. Leave the surface very rough on the last digging.
4. Finish digging and seedbed preparation in the spring.
5. Re-seed with six to eight pounds of alfalfa, six to eight pounds of bromegrass, and one-half pound of ladino with one to 1½ bushels of oats per acre.
6. Protect by fencing.
7. When moisture conditions are favorable, harvest the oats for grain.
8. Don't graze the new seeding in the seeding year.

The lime and fertilizer must be worked into the soil for best results and the old sod must be thoroughly worked to insure a successful stand of new seeding. There is no need to worry about erosion, even on the steepest slopes, because in renovation the torn pieces of sod are left on the surface as a mulch. This surface mulch not only prevents erosion, but it also helps hold the

IN OUR NEXT ISSUE — Carl Bender reports **How Cows Respond to Quality Roughage** when fed (1) no grain, (2) grain at a ratio of 1:6, and (3) grain at a ratio of 1:3.



Permanent pastures do not provide needed feed requirements for much of the growing season. The milk production curve closely follows pasture production.

The author is extension agronomist at the University of Wisconsin.

moisture where it falls. Disking and digging the old sod also enables you to cash in on years of accumulated organic matter.

Plant foods released by the breakdown of this accumulated organic matter and the conservation of moisture are the explanations for higher yields of grain from renovations than from comparable crop land even where higher rates of sowing are used. This kind of production is the basis for saying that "any pasture on which a seedbed can be prepared by disking and digging, should no longer be considered as permanent pasture but, rather, pasture production from this kind of land should be considered as a crop in a long rotation—one year of grain and three or more years of a grass legume mixture."

Mixtures such as alfalfa, bromegrass, and ladino clover permit a flexibility of operations because they may be used as needed for pasture, hay, or grass silage and an adequate acreage permits rotational grazing or utilization of surplus pasturage for hay or silage. A total of four, five, or six fields are necessary for good management and assurance of continued high levels of production at all times throughout the growing season.

Sudan Grass Has a Definite Place

Sudan grass, in areas where 105-day or later maturities of corn can be grown, will provide more feed per acre during the hot, dry periods of the summer than any other crop. Some farmers use it only as an emergency crop following severe winterkilling losses of legumes; others plan on it annually for supplemental pasture during the hot, dry periods of the season.

Worries about losses of cattle from hydrocyanic or prussic acid poisoning have been greatly reduced by the release of a new Wisconsin strain of sudan named "Piper." Seed of this strain for pasture purposes will be available in 1952. According to tests made over an eight-year period, the prussic acid content has not been sufficiently high, based upon the normal daily intake of green material by a dairy cow, to cause poisoning. However, while toxic levels have never been reached under conditions experienced during these eight years, it might be possible that under very extreme conditions a toxic level might be reached. In comparison with other strains of sudan grass it can be considered much safer.

Pickled Pastures

Pickled pasture or grass silage offers the only hope of a twelve months' pasture season in Wisconsin. Some farmers are considering this possibility of saving more of the nutritive value of the feed which they grow and of eliminating or at least reducing the slump in milk production that is associated with a poor pasture program.

It is good insurance to plan for an abundance of high quality pasture because any seasonal surplus can be used to good advantage as grass silage. On highly productive land, plan on at least one acre of a grass legume mixture and, in addition, one-half acre of sudan grass per head. On less productive soils 1½ to two acres of pasture may be necessary in addition to the sudan. Four to six fields are necessary so that the grazing and harvesting may be properly rotated and managed.

Good pastures don't just happen. They result from carefully worked out plans put into operation.

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For sure fly control you must kill both!
PASTURE flies and BARN flies

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Don't Sacrifice Hay for Corn

A three-ton crop of alfalfa gives 630 lbs. digestible protein per acre, while a 60-bushel crop of corn gives 223 lbs. digestible protein per acre.

by Milton E. Bliss

FARMERS who are puzzled over whether to plow up good hayland and pasture for corn this year or whether to leave it as meadow have an easy decision to make! Leave it in hay.

Corn, it is true, is urgently needed to maintain and even increase the nation's reserve feed supply. Production guides call for 90 million acres in corn this year, close to six million above last year. But farmers will not be shirking their patriotic duty in feed production if they leave good hay and pasture land undisturbed and if they harvest and preserve the nutrients those crops contain.

Here's why: Experiments show that a three-ton crop of alfalfa or clover and timothy hay will yield as much total digestible nutrients as a sixty bushel corn crop used as corn and cob meal (not considering the value of the stalks) and nearly as much as a nine ton yield of corn silage.

Legumes Ahead in Protein

Good legume crops are far ahead in digestible protein per acre. A three-ton to the acre crop of alfalfa will yield 630 lbs. digestible protein as against 223 lbs. from an acre yielding 60 bushels of corn. Nine tons of corn silage yield only 216 lbs. digestible protein. Three tons of mixed clover and timothy hay will yield 288 lbs. digestible protein, not as much as the alfalfa to be sure, but still well ahead of either corn grain or silage.

Nutrients in Hay Cost Less

These facts in themselves offer convincing proof of the wisdom of leaving good hay land undisturbed when choosing the fields to be put into corn this year. But the case is even stronger than that. The cost angle is another one to consider and here again hay and pasture have the edge by a wide margin.

Reports gathered by dairy industry authorities in the United States Department of Agriculture show that total digestible nutrients can be produced at considerably lower costs in pasture and hay crops than in grain crops. Studies in sixteen states on the cost of producing 100 pounds of total digestible nutrients show that pasture is the least expensive of all. The next least expensive is by making alfalfa hay. Then follow clover and timothy hay, corn silage, corn grain, and barley with oats at the top of the list as the most expensive — more than three times that of pasture and almost two and one-half times as costly as alfalfa hay.

In North Carolina on land capable of producing fifty bushels of corn per acre, improved pastures produced the feed equal to 87 bushels of corn. One hundred pounds of digestible nutrients cost 58 cents from improved pasture, $1.35 from alfalfa hay, $1.77 from corn, and $2.07 from oats. Returns per man hour of labor figure out to be more than eight times as large from improved pasture as from oats. Studies in the Middle West show a similar comparison.

Hay Must Be Of High Quality

It must be noted here that the emphasis is on high quality hay and pasture crops. Ordinary bluegrass pasture, unrenovated and unfertilized, would not make such a favorable showing. Just to show what can be done, bluegrass pasture at the Agricultural Research Center at Beltsville, Md., more than doubled its production of total digestible nutrients when given good management and the full improvement treatment.

Good permanent bluegrass that was not fertilized produced 1,900 lbs. total digestible nutrients per acre when grazed continuously throughout the season. A similar pasture moderately fertilized and rotationally grazed produced 2,500 lbs. total digestible nutrients per acre per year. Some years later, similar grazing treatment but slightly heavier fertilization boosted the total di-

gestible nutrients per acre to 2,780 lbs. An adjoining pasture seeded at about the same time, liberally treated with lime, manure, and fertilizer, and then renovated and reseeded, produced 3,900 lbs. total digestible nutrients per acre.

Home Grown Protein Cuts Feed Costs

Good roughage, either good hay or good pasture, will go a long way toward meeting the feed requirements of a dairy cow. Experiments carried out by the United States Department of Agriculture indicate that cows will produce about 70 to 75 per cent as much milk on good roughage alone as on roughage and grain. If the roughage is of high quality, consisting of legumes alone or mixtures high in legumes, it will provide most, if not all, of the protein needed for high milk production. That means less out of pocket costs for high priced concentrates.

Grass Silage Saves Feed Value

Putting up a hay crop so as to save its full feeding value is a story in itself, but a word about grass silage is in order here. It is the best way found so far to save the maximum feeding value in grass and legume crops aside from their use as pasture. In one experiment at Beltsville, when forage was made into silage, 86 per cent of the dry matter and 83 per cent of the protein were preserved. Forage from the same field made into dry hay which was put up without getting rained on retained 79 per cent of the dry matter and 70 per cent of the protein. The saving in one cutting of hay made into silage was equal to about 200 lbs. soybean oil meal.

Adding up these advantages on the side of good hay and pasture crops, plus the fact that grassland offers the best and most practical way to protect the soil from erosion, you have a powerful case for keeping in grass and legume crops as many acres as are needed to produce all the hay and pasture that your livestock can consume.

Take Corn Boost Out Of Small Grain

So . . . don't sacrifice good hay land in order to get more acres of corn. A more practical way to boost corn acreage if your cropping plans call for more corn is to cut down on the acreage in oats, sorghums for grain, soybeans, or flaxseed. National production guides for those crops suggest smaller acreages for each in 1951 than in 1950. The guides call for a reduction of more than three million acres of oats, more than three million fewer acres in sorghums for grain, and lesser cuts in the acreage for soybeans and flax.

Accidents have jumped to fourth place as a cause of death, according to the National Safety Council. Topping accidents are heart disease, cancer, and cerebral hemorrhage.

"All right, it's a 'second' and you got it real cheap. What good is it?"

General Mills Larro THRIFTY FEEDING FACTS

PASTURES CAN FOOL YOU...BAD!

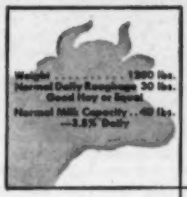
Even The Best Fall Far Short of Supplying Enough Nutrients For Maximum Production

Good pasture cannot be emphasized too much. It's the dairyman's most economical feed . . . his very life blood. But, on the other hand, it shouldn't be considered the whole answer to his feeding problems.

Pasture should be thought of as high class (but watery) roughage. At no time can it replace all of the concentrates in the rations of high producing cows. Larro scientists have even found that pasture doesn't replace all the hay . . . which is, after all, cured pasture. They have discovered, after 38 years of continuous experimenting and testing, that pasture should be supplemented with hay and a top notch dairy feed. They developed Larro Dairy Feed to be the most nearly perfect pasture and roughage supplement.

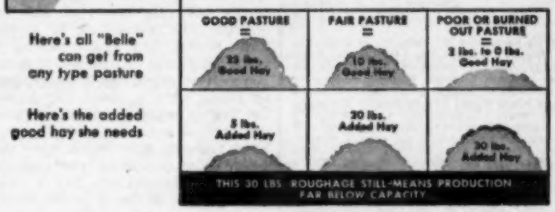
Larro Dairy Feed, fed according to production, supplements pasture and hay to help furnish the full balance of nutrients needed to get the maximum pounds of milk throughout the pasture season. Pasture and hay maintain the cow and produce the "break-even" amounts of milk. Larro Dairy Feed provides the concentrated milk producing nutrients that help keep your cows producing up to their inherited capacity.

Take "Bonnie Belle" as a typical example:



ON PASTURE, She Needs 30 lbs. Roughage Daily Just for MAINTENANCE and 15 lbs. of Milk

...BUT BELLE GIVES 25 LBS. MORE MILK DAILY WITH LARRO


GOOD PASTURE
=
25 lbs. Good Hay
FAIR PASTURE
=
10 lbs. Good Hay
POOR OR BURNED OUT PASTURE
=
3 lbs. to 0 lbs. Good Hay
Here's all "Belle" can get from any type pasture
Here's the added good hay she needs
5 lbs. Added Hay
20 lbs. Added Hay
30 lbs. Added Hay
THIS 30 LBS. ROUGHAGE STILL-MEANS PRODUCTION FAR BELOW CAPACITY

But By Adding ONLY 9½ lbs. Larro DAILY "BELLE" GIVES 40 LBS. OF MILK (*Depending on the Cow's Inherited, THEIR FULL CAPACITY)

25 EXTRA pounds of milk with Larro

Dairy Feed from any type of pasture

Calves Can Go To Pasture At Five Months

Your calves shouldn't go to pasture until they're five months old. Pasture cannot be depended upon for much of the calf's food during these first months of its life. After calves go on grass, no milk or special calf feeds are needed to get good growth. Feed 5 lbs. of Larro Dairy Feed for each calf—the same grain mixture given to your milk-producing herd. Feed at this rate too, until maturity. As with the cows, provide the stock free-choice with plenty of good quality alfalfa or mixed legume hay in addition to pasture. Also provide plenty of clean, fresh water.

HAY-SAVING MANGER SHIELD

Every dairyman knows how cows nose and toss hay or silage out of the manger onto the floor beyond where they cannot reach it. This problem is easily solved with a curved, plywood shield bolted to a swinging, curved pipe frame, two or three stalls wide. You can swing and hold the shields up out of the way with hooks suspended from the ceiling and inserted into screw-eyes in the frame. Then, while the cows are eating, the shields can be lowered into place.

HIGH HEAT BRINGS LESS MILK

Summer heat of 80 to 85 degrees F. seems to be the top limit of what your milk cows can stand and keep up production. The smaller breeds are least affected by the higher temperatures. Larger breeds begin to react to heat with lower production at about 80 degrees. You will want to see that your cows have some cool, shady spots during these hot summer days.

General Mills D-2-30

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DO YOU "ROLL YOUR OWN" BLEND?

Many dairymen prefer to make their own dairy ration using their own home-grown grains. Don't miss the chance to get General Mills Larro quality into your own "blend." By carefully following simple Larro directions, you can help make sure that your cows get all the proteins, minerals, and other nutrients which are either deficient, or lacking entirely in home-grown grains.

Use Larro 32% Dairy Concentrate

When you buy your Larro 32% Dairy Concentrate, ask your Larro dealer for proper mixing directions. Just pick out the formula which best suits your needs. Be sure your formula is properly balanced by using Larro 32%.

Mix it with:

Ground Ear Corn
Ground Shelled Corn
Ground Barley
Wheat Bran
Ground Oats
Ground Wheat
Dried Beet Pulp
Other home-grown grains

USERS PRAISE THE LEACH BARN CLEANER

"My Leach Barn Cleaner is one of the greatest labor savers I ever had. In less than 10 minutes my barn can be cleaned, with a minimum of labor. If any farmer wants to cut down on hard work and add a great deal of satisfaction to his work, I can highly recommend installing a Leach Barn Cleaner."

R. KENNETH BROWN
Grove City, Minnesota

"Words cannot express the worthiness of the Leach Barn Cleaner which is doing a marvelous job in our 40-cow milking barn. It has erased the dirtiest and hardest job on our farm. The manure is now removed from the gutters and into the spreader in less than 10 minutes without manual labor or messing up the center floor. Our barn cleaning time is reduced at least 50 per cent."

ROBERT B. JOHNSON
Damascus, Maryland

"I made one of the best investments on my farm by installing a Leach Barn Cleaner. Now I only need hired help for three months a year, thereby saving in actual cash, $1,500.00. I have 30 milk cows and it takes about 10 minutes to clean the whole barn. This is the third winter I have had the barn cleaner and have not broken the chain once. I highly recommend this machine to any farmer who wants to make a good investment, save a lot of hard work and add several years to his life."

ALBERT PFAFFENROTH
Pickett's, Wisconsin

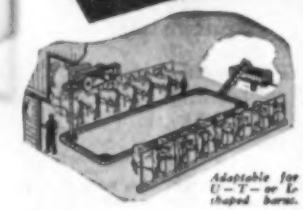
"We are very pleased with the Leach Cleaner which Mr. Gladding installed in our new dairy barn. It cleans the 160-ft. stable holding 90 head of cattle in 32 minutes. We would not like to go back to the Shovel and Wheelbarrow."

J. HENRY JOHNSON & SONS
Marshfield, Vermont

"We have one of your gutter cleaners and you will be interested in knowing that it works as nearly perfect as any implement that we have ever used. It is a pleasure to watch a 14-year-old boy turn the switch and clean a barn, 150 feet long, with no help from anyone. There are three large tractor-spreader loads each day. What was a heavy, hard job for two strong men is now done in a few minutes by a boy. The heavy-duty motor starts and moves the load along very easily. It takes about 20 minutes to complete the cleaning."

L. J. LONERGAN
Homer, N. Y.

LEACH Barn Cleaner



Adaptable for U—T— or L-shaped barns.

KEEP this important fact in mind: Don't install a "cheap" barn cleaner just to save a few initial dollars. We are pioneers in this field and have learned that a barn cleaner must be built to TAKE IT—and that calls for proper design and strong, rugged construction. By all means, check Leach before you install.

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Hay Flames At 300 Degrees

First-hand experience shows hay temperature is closely associated with the color of the hay.

TOO OFTEN the first sign that's seen of overheating in a hay mow is the smoke or flames after the fire has already started. Observations and temperature checks by H. D. Bruhn, University of Wisconsin agricultural engineer, show that temperatures in a mow of damp, heating hay were closely connected with the color of the hay.

Up to about 120 degrees F. alfalfa hay stays its normal green color. Between 120 and 130 degrees it takes on a yellowish to light brown tinge. At 150 degrees the color is very brown, and the hay definitely smells hot. By the time the hay reaches 190 degrees it is a very dark brown, like dark tobacco or bitter chocolate. At higher temperatures the brown color is replaced by black. Above about 250 degrees the hay is no longer tough and flexible, but is easily crumbled by rubbing between the hands and then looks like powdered charcoal. At about 300 degrees the hay is ready to burst into flames if it gets enough oxygen and some glowing particles appear.

What Happened in Two Mows

Two overheated mows which Bruhn observed during the summer of 1949 provided information that may help farmers in handling hay when there is danger of spontaneous combustion.

In one case temperatures were as high as 194 degrees under the hay track in a county farm barn. Other places in the mow ranged from 130 degrees to 140 degrees. Apparently the hay had been dropped from the carrier and not spread out enough in the mow.

A six to eight-foot section of the hay through the center of the barn was cut and taken out. That took out the hottest hay and also let the side sections cool enough so that there seemed to be no further danger. It was not necessary to take all the hay from the center section —taking out about eight feet left seven to eight feet to the floor.

In the second case Bruhn was called out to see a barn which had blackened on the end and looked as though it were about to burn. Examination showed that the blackened boards were not charred but a creosote-like substance from the heated hay inside had condensed and dried on the outside of the boards.

The hottest spot in the mow was about six feet from the end. Boards were knocked off and the hot hay taken out. As the hottest spot was approached, the color changed from that of fairly good field-cured alfalfa to a yellow, bleached material; then to a brown; then a dark brown, and finally a coal black. There were some glowing particles in the black hay where the temperature was around 300 degrees F. Some of it gave off a yellowish grey smoke in contrast to the steaming of the brown area.

Hay Was Black

When the center of the hot area was reached, a forkful was taken out with several spots about the size of a lead pencil glowing in it. When the forkful was dropped to the side of the barn it burst into flames. Water was pumped onto the pile outside and the hot spot in the mow was also wet down to prevent more flames. After it had been wet the blackened hay left in the mow had to be taken out with a scoop shovel, because it wouldn't hang together well enough to handle even with a six-tined fork.

While that material was being taken out there was a smell like that of burning wood. Gases given off were irritating to the eyes of the men working in the mow, and the odor was so strong that they had to come out for fresh air every few minutes. A fine black dust floated in the air, and settled on everything in the mow.

For his temperature measurements Bruhn used a thermocouple embedded in a small brass point. It was at the end of a 10-foot probe made of 1/8-inch galvanized iron pipe. The probe was left in the hay long enough to reach, or come very close to, the temperature of the hay. The temperature indicating equipment to use with a thermocouple gives a reading very quickly but is rather expensive. Anyone wishing to determine the temperature of hay in the mow only occasionally can push a pointed ¼-inch iron pipe into the hay and then slide a chemical thermometer on a string down inside the pipe.

Milk Control Programs Are In Public Interest

Cornell's Dr. Spencer reviews effects of 17 years of milk price regulations.

AN APPRAISAL of the effects of 17 years of federal and state regulation of milk prices has been completed by Dr. Leland Spencer, professor of marketing at Cornell University. He finds that the milk control programs have raised the cost of milk to consumers as well as the prices paid producers. The increases due to public control, however, are much less than is generally believed, he says.

In his 42-page report, Professor Spencer calls attention to the fact that the state and federal government took responsibility for fixing milk prices at a time when farm incomes were pitifully low. The first objective, therefore, was to raise the farmer's price to a more satisfactory level.

Greatest Benefit in Deficit Areas

Public control of milk prices has brought greater benefits to farmers in dairy-deficit areas such as Connecticut and New Jersey, than to those in dairy-surplus areas such as milksheds of Chicago, Minneapolis, and Des Moines. Due to public control, dairymen in the New York milkshed probably have received about 20 to 25 cents more per 100 pounds of milk sold during the last 17 years, Dr. Spencer says. He estimates the extra cost of milk to consumers has averaged between one-half and one cent a quart.

According to the Cornell professor's computations, the higher prices to producers under public control caused the New York milk supply to be about 2 per cent larger in 1949 than it would have been without control. Sales of fluid milk were curtailed about 1 per cent and cream sales perhaps as much as 5 per cent. The result was a larger quantity of milk to be used for manufacture. The report states, however, that the increase in city milk supplies due to price-fixing by government has had no significant effect upon milk prices in other parts of the country.

Formulas recently adopted for pricing fluid milk in New York and Boston provide for keeping the milk price in line with general price trends. These formulas also cause the prices to be raised or lowered depending upon changes in supply and demand.

Dr. Spencer points out that administered pricing was typical of the fluid milk industry even before the government stepped in. From 1916 to 1933, collective bargaining between milk producers' associations and dealers was the principal method, and before that, prices to farmers were determined by leading dealers in each market.

Pay Same Price

Under public control all dealers in the market are required to pay the same price for milk that goes to consumers in fluid form. That, says Spencer, helps to promote fair competition and to prevent price wars which formerly brought grief to farmers as well as distributors.

A majority of the federal milk orders and some state orders also include provisions for smoothing out differences in prices that dealers pay producers. In these markets, the lower returns for surplus milk are distributed evenly among all producers, The lack of such equalization in some markets throws an unfair burden upon certain groups of producers.

The report acknowledges that some interference with individual freedom and initiative are unavoidable under any system of public control. However, it is stated that the milk control programs are designed to cause a minimum of regimentation. All federal milk *(Turn to page 402)*

LADINO is tops in protein

Due to its abundance of leaves, ladino outranks alfalfa and clover in protein.

by H. J. Snider

RED clover and alfalfa are old friends to most livestock men. Their good and bad points are well known. In other words, these two familiar legumes have established their reputations.

Today there are other legumes, such as lespedeza and ladino clover, which have been introduced but whose good points are not so well known. Ladino clover has become very popular. What is back of this popularity?

Foremost in the minds of livestock men is the high protein content of ladino clover. It is also rich in minerals and vitamins, all of which add to its popularity. In fact, when it is compared with other legumes, ladino outranks them in many respects as shown in the accompanying chart. Total protein in ladino was higher than that of high grade alfalfa hay, and also much higher than red clover and lespedeza.

Outranks Alfalfa by 82 Lbs.

As an average of some 50 determinations, ladino outranked red clover by 100 lbs. protein per ton of dry hay. It outranked alfalfa by 82 lbs. protein and contained considerably more phosphorus than alfalfa, slightly more potassium but slightly less calcium.

Silica is an undesirable element from the feeder's standpoint and is found in very small amounts in ladino, alfalfa, and red clover. The amount of silica in oat straw is ten times that in ladino clover. Silica is a hard element and gives stiffness to straw and stems and for this reason is a desirable element in oat straw and timothy.

When you question your wife's judgment, remember she married you.

Leaves are by far the most valuable portion of any legume hay. Ladino clover is a leafy plant and this very large proportion of leaves is responsible for its high quality. Alfalfa, red clover, and lespedeza are made up of a considerable proportion of coarse stems and this cuts down on the value of the hay.

Stems Lower Quality of Feed

Ladino is nearly all leaves while alfalfa averages 48% leaves and 52% stems; red clover averages 29% leaves, 52% stems, and 14% bloom. Lespedeza averages about 54% leaves and 46% stems. These very important legumes average near half stems and this stemmy material lowers the quality and also the digestibility of the feed.

Leaves are high in protein and when leaves only are considered, the value of the legumes takes a different position in order of rank. Alfalfa leaves contain 512 lbs. of protein per ton of dry matter while ladino contains only 444 lbs. Red clover leaves contain 468 lbs. protein per ton of dry weight, which makes red clover leaves slightly superior to ladino clover. Lespedeza leaves average only 351 lbs. protein per ton which is considerably below that of other legumes.

The percentage protein in leaves, compared to stems, serves to emphasize the greater value of the leafy materials. The following are the average percentages of protein in leaves and stems. Alfalfa leaves 25.6%, stems 12.5%. Red clover leaves 23.4%, stems 8.4%. Lespedeza leaves 17.7%, stems 8.2% total protein.

Grass Is Helped, Too

Ladino is excellent for legume-grass mixtures because it enriches the grass among which it may grow. In a test on the Brownstown experiment field in Fayette County, Illinois, fescue grass (Ky. 31) growing with ladino clover was found to contain 300 lbs. total protein per ton of grass on the dry basis. The same grass grown without ladino clover contained only 151 lbs. total protein in a ton of grass. These results represent the protein in grass only and show large possibilities of improving the feeding value of grasses in legume-grass mixtures.

Ladino is also good for soil improvement but not quite as good as alfalfa because of the difference in root systems. A top growth of 2,500 lbs. ladino was found to have approximately 1,500 lbs. roots an acre. This amount of tops and roots contained 123 lbs. nitrogen. A 2,500-pound top growth of alfalfa averages 3,000 lbs. roots and the tops and roots contained 143 lbs. nitrogen.

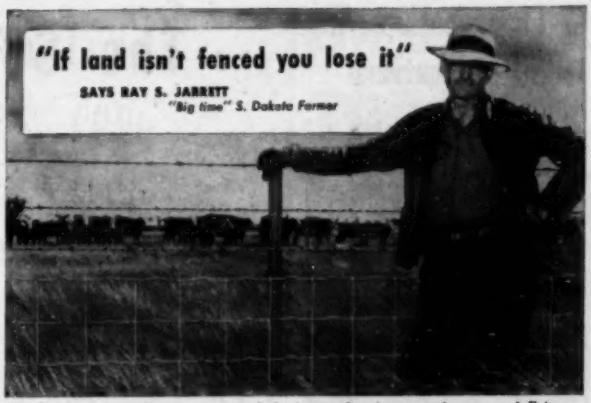
A good growth of ladino tops and roots was made up of approximately 4,000 lbs. organic matter and 123 lbs. nitrogen an acre, all of which might be used for soil improvement. Alfalfa of the same acre yield of top growth was made up of 5,500 lbs. organic matter an acre and 143 lbs. nitrogen; these amounts also might be used for soil improvement.

Seeding Rate Is Low

Ladino seed is expensive but the high cost has not deterred its use because the acre rate of seeding, one to two pounds, is relatively small. A good stand and a satisfactory growth of ladino may be readily obtained if the land is well limed and other fertility elements added as soil tests show the need.

Ladino is at its best as a pasture, but it also makes a high grade hay. Ladino yields may run from 1½ up to 2½ tons of hay an acre. This is not as high as good alfalfa yields. Ladino is more difficult to cure than other hay and this must be considered when harvesting a crop.

A southern Illinois farmer was telling his neighbor one day last summer that his feed problem for the winter was solved because he had his feed barn full of baled ladino clover. When he began feeding this hay he found every bale moldy and unfit for feed. He had not given the leafy ladino time to thoroughly cure and therefore lost an entire winter's supply of feed.



Mr. Jarrett owns and manages one of the largest farming operations around Britton, South Dakota. He ships some 50 cars of cattle a year from his own loading chute and raises about 500 hogs and 5000 sheep. He has about 3000 acres in corn, 3000 in oats, 1000 in millet, 3000 in native grass pasture and considerable flax, wheat, barley and alfalfa.

Mr. Jarrett knows the value of woven wire fence as a farm tool. He has about 200 miles of fence on his land—and a large share of it is U·S·S American.

"Fencing is a big operation on my farm," he says. "I buy about 1000 to 2000 rods of woven wire at a time and it's got to do the job. American Fence stands up well in this country. It has given me real service."

This huge operation shows what a time and work saver good fence can be, for only 20 men are on the payroll. Two of them take care of building and maintaining the fences which are put up largely with American Steel Posts.

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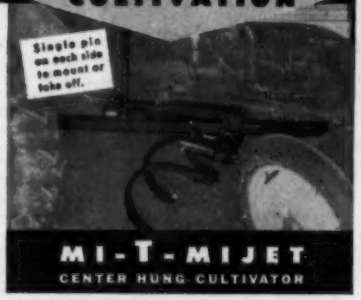

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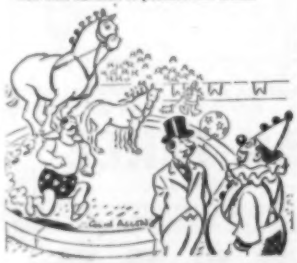
7 Championships At '50 International

Warren-bred Belgians win both Grand Champion mare & stallion!

Ted Warren shows Grand Champion mare, "Susie Lyn DeMoss". Ted and father are two more champions who get farm-size breakfast nourishment from Wheaties!

BANCROFT, MICH.—Talk about prize Belgian horses, and you talk to Ted and Perrin Warren. Father-son team won 7 championships at '50 International Livestock Show — including both Grand Champion mare and stallion! Over 500 awards won on their Belgians since 1937!

Warren family raised Belgians over 50 years—since Perrin's grandfather first introduced breed to home county. Long-time interest in sports and breakfast cereals started Perrin and son Ted, eating Wheaties over dozen years ago. It's that Wheaties "flavor", they say—goes so well with bananas or peaches and cream.



"He changed the act after his first bowl of Wheaties."

Three generations in Warren family now enjoy "Breakfast of Champions". Includes Perrin, his seven children, and twelve grandchildren. Fine family nourishment in Wheaties. And no wonder. There's a whole kernel of wheat—plump, sweet, and golden-toasted—in every Wheaties flake!

Wheat used in Wheaties is no choice, less than 1% of all wheat grown in America meets Wheaties' high requirements! And all the healthful bran and wheat germ are left in. You get B-vitamins, minerals, protein, fast-stepping food energy. Tomorrow morning—start your day feeling good, doing good. Have Wheaties with milk and fruit. "Breakfast of Champions"!

Economy minded? Buy your Wheaties in the Extra-Big-Pak. 50% more than regular size Wheaties package . . . at a saving.

"Wheaties" and "Breakfast of Champions" are registered trade marks of General Mills.

The Story of Hybrid Corn

What has taken place before you received your hybrid seed corn.

by

C. M. Harrison

HYBRID corn today is taken for granted by most corn growers and the old open-pollinated varieties are fast disappearing from the market. This phenomenal change-over from the open-pollinated to the hybrid varieties in less than twenty years has been one of the most interesting developments of modern agriculture.

In 1949, 77% of the total acreage of corn in the U. S. and 94% of that grown in the corn belt was of hybrid varieties. As recently as 1933, in comparison, less than 0.5% of the corn was of hybrid varieties. Hybrid varieties are much more uniform than the open-pollinated and much greater in number. The greater number of hybrids makes for much better local adaptation to soil and climate.

Early Work With Hybrids

In the early 1900's, Shull and East started working on the purely genetic problems of corn. They inbred some corn plants by using the pollen from a corn plant on its own ear silks.

After several successive generations of inbreeding, they concluded that such inbreeding resulted in a definite loss of vigor but an increase in the uniformity of the plants. However, when they crossed two inbred lines of corn by taking pollen from inbred A and transferring it to the ear silks of inbred line B, the resulting crossed seed produced, the following year, plants in which most of the lost vigor was regained. The inbreds, however, were small, the yields of corn low, and the kernels small and irregular in shape.

Not until 1917, when Jones suggested a method for increasing the yield of hybrid seed, did the principles of inbreeding followed by crossing seem possible on a commercial scale. He suggested using a double-cross method which would increase the yield of hybrid seed. For example, inbred line A is crossed with inbred line B to make a single cross. Inbred line C was crossed with inbred line D to make a second single-cross. The following year, seed from the cross A x B is planted in the same field with seed from C x D.

If A x B, single-cross, was to be designated as the female and C x D, the male, then 4 rows of AB would be planted to every row of CD. (It should be remembered that corn plants normally carry both male and female elements — the male or pollen in the tassel and the female in the ear.)

If the tassels are removed before the pollen is shed from the plants designated as female, in this case AB, and left on the plants designated as male CD, then forced cross pollination is brought about between lines AB and CD. The resultant seed, produced only on the detasseled or female line, is called double-cross hybrid seed.

By using the single-crosses instead of inbreds to produce hybrid seed, the yield per acre went from 2-10 bushels for the inbreds up to 25-40 bushels or more for the double-crossed seed. This method made possible the using of the principles of corn inbreeding to produce hybrid seed. By inbreeding, undesirable characters are weeded out and the corn is made more uniform. By crossing inbreds for single-crosses and then crossing single-crosses to make double-crosses, seed corn is produced which is better adapted to local conditions of soil and climate.

Where adapted, hybrids usually produce from 15-20% more than best adapted open-pollinated varieties.

Once the double-cross technique was put into use, hybrid corn varieties were soon offered for sale. Today most of our questions on hybrid corn have to do with choosing the best hybrid variety and explaining why we cannot use the corn which we produce from hybrid seed as seed corn. The method of producing hybrid seed is always of interest, particularly when a pair of puny inbred corn parents are grown in the same field with their giant offspring resulting from crossing the two inbreds.

Growing Inbreds

In order to keep hybrid seed corn production from coming apart at the seams, some person or organization has to grow the inbreds which go into the single-crosses. These inbreds are difficult to grow, low in yield, and must be kept free of foreign corn pollen. As a result, they are grown either in isolation or are hand pollinated under the supervision of the plant breeder at an agricultural experiment station or in the employ of a hybrid seed company.

When hand pollinated, the tassels and ears are covered with sacks. As the pollen sheds inside the tassel sack, it is transferred by hand to the ear, dusted on the silks, and then clipped or tied over the ear to keep out foreign pollen. Keeping the inbred lines pure and at a certain level of vigor is a very technical job and trained people are essential.

In addition to keeping the hybrid seed program supplied with uniform and pure inbreds, the corn breeder is continually developing new inbreds and better, more disease resistant hybrids.

It takes an immense amount of patience and skill to spend all summer in an acre or two of inbreds which may yield 2-3 bushels of corn. But such work is an absolute necessity if the commercial corn grower is to be supplied with hybrid seed of a known ability to produce. Even though only a small acreage of inbreds is necessary to produce sufficient corn to make the single-crosses, this part of the program constitutes considerable of the overhead expense in the production of hybrid seed.

Single-Cross Production

Once inbred seed is available in sufficient quantities to allow the next step in hybrid seed production, an isolated field a given distance away from any other corn is planted to the inbreds.

Inbred A may be more productive than inbred B so A is designated as the female parent which is ultimately to be detasseled. As there is a very large surplus of pollen on any corn plant, about 4 rows of the designated female inbred is planted to every row of the designated male inbred. As the corn begins to tassel and before pollen is shed, the tassels are pulled from the 4 rows of female (inbred A) and left on inbred B. Inbred B is then allowed to tassel, shed pollen, and pollinate the silks of inbred A which have been detasseled.

At maturity only the female detasseled corn is kept as seed, the male rows being kept separate and used as feed. Such seed is called a single-cross. Several such single-crosses using different inbreds are grown each year by the organizations producing hybrids. For example, if a given hybrid seed organization is producing hybrid seed of 10 varieties of corn, it would take 40 inbreds and 20 single-crosses to maintain the 10 varieties. In some cases inbreds are common to several varieties and fewer need to be grown.

Both inbreds and single-crosses are grown under the supervision of technically trained people in small isolated areas and are seldom noticed. An acre of inbreds producing, for example, only two bushels of corn would plant 16 acres for single-crosses. At 10 bushels per acre, the 16 acres of single-cross would produce 160 bushels. One hundred and sixty bushels of single-crossed seed would plant 1,080 acres for double-cross hybrid seed.

The single-crosses are much more productive and might be expected to produce 30 bushels per acre or 32,400 bushels of double-crossed hybrid seed for the com- *(Turn to page 413)*

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Spread Pasture Droppings, Too

You can get more grazing per acre by spending a little time with a homemade drag on your cow pastures.

by A. C. Arny

THIS subject may seem to be one which is more or less taken for granted on many or most farms. It wasn't so long ago that more light was shed on the value of manure on the farm. The value of preserving manure in pits, applying it to the land at the proper time and in the proper way, and the general talk about the handling of manure on the farm are items of discussion and research which have gained more and more recognition in recent years, and rightly so.

With so much emphasis on the value of saving liquid manure, it is time that the subject be more completely discussed by reporting some research on the value of solid cow droppings to our pastures.

The liquid part of cow manure contains about half and the solid part half of the total fertilizer constituents of cow manure The liquid part voided by cows on pasture sinks into the soil and is readily available to the plants. Spots in the pasture where the plants are a much darker green in color, and grow more rapidly, make this evident.

Droppings Can be Bad for Pastures

This same effect does not hold true with reference to solid cow droppings. Left unspread, they kill out completely the Kentucky bluegrass and white clover underneath them. The areas underneath the solid droppings produce no feed until they rot away. This usually takes five to six months or longer. In addition, the thin fringe of dark green growth around each dropping is avoided by cattle except in severely overgrazed pastures.

How large a part of each acre in your permanent pasture is covered with solid cow droppings? The information needed to answer that question was obtained by the thorough work over the three-year period, 1942-44, in three permanent pastures. These pastures are located in the east central and southeastern parts of Minnesota. In each of these pastures, right around 1½ acres were available to each dairy cow.

The areas of grass that single solid cow droppings kill out are small; the largest being not much more than a square foot. However, when the areas covered by around 800 to a 1,000 or more per acre are added together, the total area was found to be surprising.

Can Cover Large Area

In the severely overgrazed pasture on the Mike DeVille farm, the droppings covered 1.4 square rods per acre. In a 30-acre pasture this would be 42 square rods or about a quarter of an acre. In the moderately grazed Flaspeter farm pasture, the area covered by the solid droppings was 2.7 square rods per acre. In a 30-acre pasture this would be a total of 71 square rods covered by the solid droppings or a total of nearly half an acre. The high yielding Andrist pasture in Goodhue County had over three square rods per acre covered with the solid droppings.

The size of the areas of grass killed out by solid cow droppings on these three farms merit thinking about now and doing something about during the grazing season.

No production of pasturage for one grazing season or longer on the spots covered by solid cow droppings is only part of the loss.

The solid droppings collected from the severely overgrazed pasture averaged one ton per acre fresh basis per season over the three-year period. The fresh manure averaged 83.8 per cent water. The weight of the solid droppings per acre per season gathered in the other two pastures averaged 1.77 and 2.22 tons. Average for the three pastures was 1.66 tons solid droppings on the fresh basis per acre per year.

This is not far from the usual rate of manuring in a three-year rotation of grain, hay, and corn. In the rotation, the manure is applied at the rate of five or six tons per acre to the corn only and none to the grain and hay. Manure applied at that rate to corn actually results in increased yields of 8 to 10 bushels per acre or more and some increases in the yields of the grain and hay.

Value of Unspread Droppings Wasted

Why don't permanent pastures which get one to two tons or more of solid droppings per acre per year, and the liquid manure as well, increase instead of gradually decrease in productivity? The answer is that the soil improving and fertilizing value of unspread cow droppings is practically wasted. Most of it doesn't get to the nearby plants that are hungering for it.

Solid cow droppings need spreading out so that the spots under them can get back into production. When spread, they decay more rapidly and the fertilizers released are washed into the soil by rains and used by all the pasture plants. Spread them to prevent their doing damage and to make them useful.

In pastures where it is practical, spreading the droppings in July and again in late August or early September is usually adequate. Just a matter of having it on the regular farm program of work and doing it as planned.

Bending a section of welded or woven wire fencing underneath the harrow with teeth tilted back makes a fairly efficient spreading implement. Weighting the harrow down helps in its efficiency.

Canary Grass for Bedding

Gerrit Laseur, tester of Cook No. 1, Illinois, DHIA reports:

"One member uses chopped canary grass for bedding. It provides a nice, clean bedding material and gives the barn and cows a neat appearance. This is the first winter he has used bedding of this kind, but he plans to chop more of it next year."

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EDITORIAL COMMENT

MORE THAN 66,000 JUDGES

THE 21st Annual Hoard's Dairyman Cow Judging Contest comes to a close with this issue. A complete report of the winners, the judges' official placings and reasons will be found elsewhere in the magazine. We are happy to report that this year's event brought 66,680 entries from every state in the Union, from Canada, from South America, and several other foreign countries.

While this is a splendid number of participants, it is only fair to report that many folks, particularly high school and 4-H groups, did not get their entries mailed in time to meet the deadline as a result of the severe weather and road conditions that plagued many of the midwestern states early in March.

We want to again thank the purebred breeders for granting permission to use their cows. The official judges make a real contribution in giving their placings and reasons for public discussion. We are grateful also to the hundreds of vocational agriculture instructors, 4-H club leaders and agents, who take the time to enter their pupils and members in this agricultural event. And, of course, we do appreciate the thousands of entries received from you readers.

While one of the purposes of this annual judging contest is to have some fun comparing your judgment with the experts, we have made a real effort to provide classes that will give the young people practice in judging. From the hundreds of letters we receive from agriculture teachers, judging team coaches, and others, we believe many are benefiting through this annual contest. Your patience with some of the pictures that did not reproduce too clearly is appreciated. Your suggestions for improving future contests will be given serious consideration.

Those of you who did not have an opportunity to participate this year will be interested to know that some of the classes for next year's contest already have been photographed. We are looking forward to another successful contest in 1952.

ARTIFICIAL BREEDING — ONE LINK

ONE of the most significant articles in our April 25 issue was located opposite the back cover. We hope all dairymen using artificial breeding services reviewed this article, "We Can Produce in 500-Lb. Herds, Too."

The author, William F. Schaefer, Jr., manager of the Northeastern Pennsylvania Artificial Breeding Cooperative, showed how artificial daughters, produced in various herds, ranked according to the average herd production. For example, he reported that there were 279 NEPA daughters in herds averaging from 300 to 350 lbs. fat. The actual production average of all herds in this particular group was 330 lbs. fat. The NEPA daughters, however, averaged 358 lbs. fat on a 305-day, M. E., 2x basis.

In herds with a production range from 400 to 450 lbs. fat, the actual average of all herds in the group was 425 lbs. The NEPA daughters in these herds averaged 455 lbs. fat. In the 450 to 500-lb. herds, NEPA daughters averaged 500 lbs. fat while all animals in these herds averaged 469 lbs.

In the top production range of over 500 lbs. fat, all animals in these herds averaged 522 lbs. There were 26 NEPA daughters in these herds and they averaged 548 lbs. fat.

It is not quite fair to compare the 305-day, M. E., 2x records to the herd averages because the latter are actual records. It is significant, however, that the NEPA daughters consistently showed increases over the average in all herd groups regardless of production average — even as high as 522-lb. fat herds. Two things stand out in this significant analysis by William F. Schaefer, Jr.

First, artificial daughters, on the average, are ringing the bell and leading the way even in the best herds. This information should serve to answer those critics who have asserted that artificial breeding was alright in the average or run-of-the-mill herd, but when it came to topnotch production it couldn't deliver the goods. Artificial breeding can deliver and has delivered high production in some of our best herds.

The second significant observation to be made should be recognized by every dairyman using artificial service. It is obvious from this report that artificial breeding is but one link in herd improvement. Whether artificial daughters produce 320 lbs. fat or 548 lbs. fat depends largely on the man behind the cow. Artificial breeding is no substitute for good dams, well balanced rations, judicious feeding, healthy herds, well grown heifers, top quality pasture, regular reproduction, and proper management during the dry period.

Every artificial breeding organization would be well advised to place this information in the hands of all of their members. Tell and re-tell the story. Artificial breeding should not be oversold nor undersold. Primarily, however, we think it is important that dairy farmers not be disappointed as a result of being sold a bill of goods which cannot be realized in practice until all links of the herd improvement chain are welded together.

THE SECRETARY GOES ON RECORD

SECRETARY of Agriculture, Charles F. Brannan, is to be commended for his forthright statement which he released to the nation a few weeks ago. Clearly and emphatically he told the nation the truth about farm prices. He told how net income to farm operators dropped from almost 18 billion dollars in 1947 to 13 billion in 1950. At the same time he pointed out that non-farm prices and wages were either dropping very little or continuing upward.

As of January 15, prices received by farmers were still below the January 1948 peak. While receiving lower prices, farmers had to continue paying high prices.

To the crying city consumer, the Secretary pointed out that food is a better bargain for the average person today than in the prewar period. Those people whose incomes have kept up with the average can buy with 19 per cent of their disposable income the same diet that required 23 per cent of their disposable income in 1935-39.

Not only did Secretary Brannan refocus the nation's sights on its food bill, but he went on to correct many erroneous statements that have been made with reference to so-called exemptions from price control. The falsity of these damaging statements was well documented by the secretary.

We regret that most of our big city newspapers and news magazines neglected, through oversight or intention, to report the Secretary's straightforward statement. The information is on record, however, and all fair-minded persons should let reason rule their emotions. As the Secretary pointed out, the retail price of bread has gone up 1.7 cents a loaf since June. If this increase in price were passed on to the farmer, it would mean that wheat had gone up $1.12 a bushel. Actually, the farm price of wheat in January was only 16 cents a bushel higher than it was before the Korean outbreak.

Farmers have no reason to apologize or suffer conscience wise from talk about the high cost of food. Most farm prices are still below parity. When they exceed parity, we must expect, in fairness, to accept price controls as our fair contribution to a stable economy and the control of unbridled inflation. We do not propose, however, to be the goat while the rest of the economy profits at our expense.

MORE SIRES CAN BE PROVED

IN 1950 there were 443,787 lactation records reported to the U. S. Department of Agriculture for sire proving purposes. This is a marvelous record, a distinct credit to the DHIA program in the United States.

According to J. F. Kendrick, head of the Bureau of Dairy Industry's Division of Dairy Herd Improvement Investigations, 43 per cent of all cows on test had records reported to the Bureau for sire proving purposes. This was a definite increase over the 40 per cent reported in 1949.

North Dakota led the list this year in the important classification of percentage of 305-day lactation records reported. That state reported 80.9 per cent of all records, followed closely by Connecticut, Maine, and Delaware. In the major dairy states, however, special bouquets should go to Pennsylvania and Wisconsin. Pennsylvania had over 88,000 cows on test and over 61,000 records were reported for the excellent percentage of 69.9. Wisconsin also did an unusual job with 83,000 cows on test and reporting 53,000 records for a 64.1 percentage. That represents a tremendous volume of work. It reflects well trained DHIA supervisors and an alert, thorough, aggressive department of dairy extension in the respective state colleges.

Our congratulations go out to the farmer-directors of local dairy herd improvement associations, their DHIA supervisors, and extension dairymen who have, with teamwork and determination, provided vital data leading to early recognition of outstanding sires and the greatest possible use of this valuable germ plasm to increase the production of the average American dairy cow. The net result is more milk at a lower cost; more money in the bank for the dairy farmer.

PLAN FEED SUPPLY NOW

FORESIGHT and good judgment will pay off this year if dairymen recognize now the probability of a feed shortage this coming winter. The hour is growing late, but provisions can still be made to make certain that on your farm there will be plenty of hay and grain to carry your dairy herd through until the next crop season.

Grain reserves are being fed out rapidly. It is reported that our reserves of corn will be cut over 300 million bushels which will leave approximately 500 million, of which a major portion may be reserved as a government stockpile for war purposes. Meanwhile, livestock and poultry numbers are increasing as our feed reserves decrease. It will pay to recheck your probable hay and silage supply and match it up with your size of dairy herd. If you are going to be short of forages or grains, act now to obtain additional acreage by rent or contract.

Heavy competition for limited supplies of feeds will result in one of two possible conditions. First, prices may increase drastically; or, if price controls are in effect and effective, feed supplies won't be readily available.

As we have mentioned before, it is critically important that every dairy farmer do a top job of putting up plenty of green, leafy, high protein, "high milk" hay this summer. The extra pains taken can pay off handsomely in more milk with less grain next winter.

IT WAS an ancient saying and one that will keep true and sweet as long as man exists: "That wisdom is greater than learning." It is wisdom or, as some might say, "judgment" that makes good use of learning, of money, of influence, of machinery, of land, of cattle.

W. D. HOARD, September 9, 1904.

Questions From Our Readers

Trouble with Pipes Freezing

We have had waterworks in the house for three years now. The first winter we had no trouble but the last two winters it froze in February and March. The water runs through copper tubing which was put in by a tiling machine at a depth of about 5½ ft. Our barns and house are on opposite sides of a gravel road so the tubing runs under the road. The distance from the well pit to the house is about 200 ft. We also have a line from the well pit to the barn about 60 ft. and this has never frozen. Our top soil is about 2 ft. of clay and below that is sand.

We think our line freezes when it crosses the road as we have been told that because snow is kept removed from the road and the ground is so packed, the frost penetrates more deeply. We had planned on digging up this section which crosses the road this summer and enclosing the tubing in galvanized iron pipe to form a dead air space around it and wrapping the pipe with old fertilizer bags. Please give us your opinion of what causes the freezing and if you think what we plan to do will help.

Wisconsin. D. B.

Your problem of a frozen water line beneath a roadway is not uncommon. This situation often exists where the water pipe passes under a traveled route. We have found that if you run the pipe through a 4" tile, or make a V trough out of boards or metal plates and permit an air space to exist around the pipe, that you usually can eliminate the freezing. Your idea of putting a pipe through a larger galvanized tube and wrapping it with fertilizer bags would accomplish the same result as a tile around the pipe.

I can't give you the exact reason for the faster freezing under a traveled road but we know this much, that the compaction of the soil excludes the air which is our insulation and permits the cold to penetrate deeper and more rapidly.

The only other alternative to prevent freezing would be to lower your water line and the figure that we use is four times the normal freezing depth. I don't know whether four times the depth is actually needed, but we know this depth works pretty well. This, however, puts the pipe at quite a depth because the normal freezing depth in Michigan, and probably in Wisconsin, is 3 ft., so we suggest that you try the pipe or tile first.—R. L. MADDEX.

Advise Lime-Sulphur

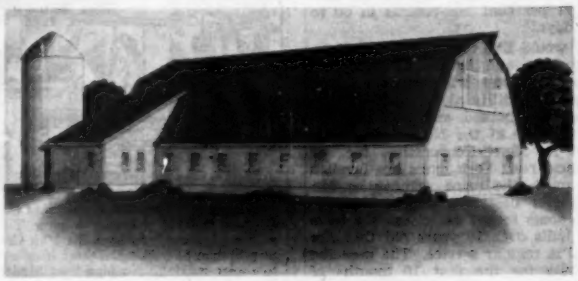
I read your article about different skin pests which bother cattle and found it very interesting. You recommend lime sulphur for lice and other pests. Would agricultural sulphur plus hydrated lime be alright to use; or can a person get prepared lime sulphur for dusting cattle? Could lime sulphur be used on cats and dogs also?

E. Stanwood, Wash. N. A. J.

It will be more convenient for you to get ready-mixed lime-sulfur for use on cattle. This may be obtained from your veterinarian. We would hesitate to try mixing agricultural sulfur and hydrated lime.

Lime-sulfur in proper proportions can be safely used on cats and dogs.

Weedy pastures may be improved by renovation—convert the growth to superior grass-legume mixtures, says Ralph Krenzin, Iowa State College extension agronomist.



You Can Build This Dairy Barn

THE dairy barn pictured above was designed specifically for Hoard's Dairyman readers. It can be built, using the materials from the farm wood lot and yet it incorporates the latest developments in efficient stable arrangement to reduce labor to the least possible amount. It features modern cow stall design and sound construction practice.

This barn has a capacity of 25 milk cows. It also has two box stalls, a pen for individual calf pens, and a group calf pen. In addition, the wing shown in the picture is provided for silage and grain rooms.

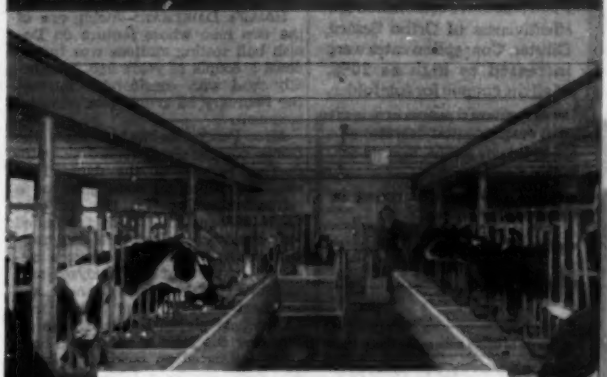
Complete working plans of this dairy barn are available through the Hoard's Dairyman Plan Service. There are six sheets, 18 x 24 inches, showing in complete detail every construction feature of this barn. The farmer-carpenter can follow the plans with no difficulty.

A bill of materials is prepared and accompanies the finished plans. From this bill of materials your lumber dealers can give you complete figures on the cost of all purchased construction items.

Plans for this modern but economical dairy barn are available to Hoard's Dairyman subscribers only, at a cost of $5.00 for a complete set. Ask for Plan No. 511. Address your orders to Hoard's Dairyman Plan Service, Fort Atkinson, Wisconsin.

"Milk Production Stayed Up All Winter Long"

...because I'd insulated my barns with CELOTEX* Insulation Board!"



"The usual severe slump in milk production didn't hit me last winter!
"Not only did my milk checks stay steady, but my feed bills were lower, too!
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Celotex Insulation Board Products make dairy barns warmer, drier, weathertight. They shut out winter chills and drafts, keep animal heat in. They help maintain an even temperature. They permit proper ventilation which helps reduce moisture condensation and odors inside the barn.

And as thousands of dairymen know from experience, a well insulated and ventilated barn reduces sickness and enables cows to feed better and produce better.

Lining a dairy barn with Celotex Insulation Board Products is simple. These tough, durable materials are easy to saw and easy to nail. They go up fast, fit snug, stay put.

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Danish Bull Testing Stations

HOARD'S DAIRYMAN:—Being one of the two men whose feature on Danish bull testing stations was turned down a couple of years ago, I naturally read with considerable interest the February 10 article plus editorial comment.

Mr. Perry maintains that the Danes completely disregard the production records of the dam. That must be based on some kind of a misunderstanding. On the contrary, the whole quotient which the tested bull receives is based on a daughter-dam comparison. The figures received in the test are analyzed statistically (analysis of variance) and the part played by the bull as well as the part played by the dam in influencing the yield of the tested heifer is estimated on percentage basis. Mr. Perry carries a table comparing 36 daughters with their mothers as an example of results which "flunk" a bull. That already indicates that dams are not disregarded. I trust Mr. Perry somehow must have misinterpreted the information.

The editorial as well as the original article emphasizes that the main reason why the Danes have started the scheme was an effort to provide uniform conditions for feeding and management of the heifers. This was originally only one of the by-products of the setup. The main objective was to get a bull tested as fast as possible, and weed out the bad risks. This is very, very important because the bad influence of a bull which is used extensively in an artificial insemination association can do tremendous harm.

Any reader of these lines who is interested in the statistical analysis applied in Denmark can, on writing to me or the Statistical Laboratory at Iowa State College, borrow a copy of the original Danish figures with an English summary.

Finally I would like to congratulate Hoard's Dairyman on the foresight and courage of throwing something new out to the public. Although I understand that the editors are not exactly enthusiastic about the deal, there might still be some few useful grains buried in the material.

Iowa. FRANK MEISSNER.

New Evidence Favors Artificial Breeding

More evidence from dairy farms favors artificial breeding, according to Enos J. Perry, extension dairyman at Rutgers University."

Perry reports results of a check-up made recently in Burlington County by Dick Moody, assistant agricultural agent. Moody looked over the records of 12 herds in which half or more of the cows were daughters of bulls used in the cooperative breeding association.

Of the 600 cows in the study, 450 were "artificials." Ten years ago, when most dairy farms kept a herd sire, the average yearly production of these herds was 7,641 lbs. milk and 344 lbs. fat per cow. Last year production was up to an average per cow of 9,305 lbs. milk, 407 lbs. fat.

Owners told Moody that better bred cows has been one factor responsible for the increase. These dairymen are also producing more milk, the average size of the herd having increased from 35 in 1940 to 50 in 1950.

Old Bulls Do Well in New York, Too

HOARD'S DAIRYMAN:—In the article "Get More Years From Your Herd Sires," by Wm. F. Schaefer, Jr., in the February 25, 1951, issue, the author states: "At one Pennsylvania stud seven bulls over 10 years old have an average breeding efficiency of 71 per cent non-returns in 60 to 90 days."

I would like to submit the following facts and figures as additional proof that bulls will maintain a high level of fertility at an advanced age when fed, housed, and handled properly. Here at the New York Artificial Breeders' Cooperative, Inc., at Ithaca, New York, bulls are handled in much the same manner as Mr. Schaefer describes, except that we use some forced exercises. We have 14 bulls over 10 years old that are still in regular service. The breeding results for the first 10 months of 1950 show that these bulls maintained a breeding efficiency of 73.5 per cent, based on 60- to 90-day non-returns. This percentage figure is based on 21,958 first services. The average age of this group is 11 years, three months.

The oldest bull, a Brown Swiss, is nearly 14 years old and has a breeding efficiency for the same period of 76.7 per cent. One Guernsey bull has been in continuous service here for over 10 years. He has never been used for natural service. He, together with four others of this group, have been desirably proved or reproved through the production of their artificially sired daughters, thus showing that they are capable of maintaining a high level of production under all sorts of conditions. This longevity makes it possible to breed a higher proportion of our members' cows to bulls proven through their artificial daughters.—RALPH M. WELKER, Laboratory Manager, New York Artificial Breeders' Cooperative, Inc.

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Dairy Digest

W. A. WENTWORTH ELECTED TO DAIRY COUNCIL POST

W. A. WENTWORTH

W. A. Wentworth has been elected chairman of the executive committee of the National Dairy Council. He succeeds E. W. Tiedeman, formerly general manager of Central Dairy Sales Cooperative, Chicago, who now heads the Dairy Branch of the Office of Price Stabilization in Washington, D. C.

Mr. Wentworth is director of industry relations of The Borden Company. He served as chairman of the Dairy Industry Committee in 1950 and has been an officer of that organization since 1933. He has been a director and member of the executive committee of the National Dairy Council from 1937 to the present and has served as president of the Dairy Products Institute from 1947 to date.

DR. TURK IN EUROPE

Professor Kenneth L. Turk, head of the animal husbandry department at Cornell University, is in Europe spending four months observing work in livestock feeding, breeding, and management. He will visit dairy farms, veterinary and agricultural research stations in Scotland, Norway, Sweden, Denmark, Holland, France, Italy, and Switzerland; and on the Islands of Jersey and Guernsey. Professor Turk was awarded a traveling fellowship for study at scientific institutions in foreign countries by the New York State College of Agriculture and Experiment Stations.

DAIRY EXPOSITION OFFICERS

The third International Dairy Exposition will be held on the Indiana State Fair Grounds at Indianapolis, October 6-13.

New officers of the Exposition are: president, Oscar A. Swank; vice-president, Roy Monroe; secretary-treasurer, W. A. Wilson; and general manager, Horace Walker.

Oscar Swank, former general manager, has moved up to the post of president. Horace Walker has worked with the International Livestock Exposition in Chicago for 14 years and, for the past six years, has been assistant to William Ogilvie, the general manager.

KLUSSENDORF LEAVES A. V. M. A.

Dr. Raymond C. Klussendorf, editor-in-chief of the American Veterinary Medical Association publications, resigned from his work, effective April 1. He has accepted a position as director of veterinary medical services with Commercial Solvents Corporation in Indiana.

Dr. Klussendorf joined the headquarters staff of the Association in April of 1945. Previous to that time he had served as veterinary editor of Hoard's Dairyman and was in private practice in Wisconsin.

Dr. C. R. Donham of Purdue University will take over the editorial duties until a permanent editor-in-chief is selected.

RICKSHAM GETS NEW ADA POST

R. I. Ricksham has been appointed to the post of assistant general manager of the American Dairy Association. Until receiving his most recent appointment, Mr. Ricksham was national merchandising director of ADA for five years. He began with ADA in 1940, first serving as director of market merchandising activities in the Northwest area with headquarters in the Twin Cities. Later he was state manager of the American Dairy Association of Wisconsin.

In his new work, Mr. Ricksham will have joint direction of membership and merchandising activities in cooperation with the state units of the association from coast to coast. He will assist Owen M. Richards, general manager.

WISCONSIN GRASSLANDERS

A new farm group has been organized in Wisconsin. It's called Wisconsin Grasslanders, with membership made up of each year's winners in the state-wide grassland farming contest. Winners of the 1950 contest are charter members. They have elected 1951 officers who are: Louis Wojtkiewicz, president; William Figi, Jr., vice-president; and Roman Maly, secretary-treasurer.

The group has been set up to push grassland farming in Wisconsin. It will promote a program based on high quality products, low cost feed production, and good land use in a livestock economy.

It will also serve as an advisory group to the Wisconsin College of Agriculture grassland farming committee.

Milk Prices

The Wisconsin farm price of milk for all uses was $3.95 per hundred pounds in January 1951. This average price was a 20-cent increase over the December 1950 price, which was a 22 per cent increase above the average of a year ago. For the United States as a whole, the average farm price of milk for January 1951 was 12 cents above December 1950, or about 15 per cent more than the price in January 1950. This report comes from the Wisconsin Crop and Livestock Reporting Service.

In January, milk for all uses averaged $3.95 per hundred in Wisconsin, $3.55 per hundred in Minnesota, $4.00 per hundred in Iowa, $4.70 per hundred in California, and the average for the United States was $4.66 per hundred.

According to Wisconsin use, market milk averaged $4.05; cheese, $3.90; butter, $3.84; and condensery, $3.93.

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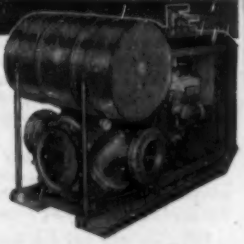

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SALT

What Does The Feed Bag Contain?

by C. W. Nibler

THE costly part of the milk cow's ration is the grain. Cows receive about 75 per cent of their total nutrients from roughages and 25 per cent from the grain mixture. About 65 per cent of the nutrients are required for body maintenance and 35 per cent for milk production. Dairy herd improvement association records during the past year or two show that the cost of roughages has been practically 46 per cent, and the cost of grain 54 per cent of the total feed cost. Although the most expensive part of the ration is the grain, cows producing in the profitable brackets must receive part of their nutrients from the concentrates.

Home-grown grains usually provide the basis of the grain mixture. To balance the grains or to increase the protein content, commercial concentrates many times are purchased. Some dairymen need to purchase practically all of their concentrates because they produce more nutrients per acre by growing roughages.

Supplement Farm Grown Feeds

Feeds should be purchased to supplement what is available on the farm. One needs to carefully analyze what is available and then balance the farm-produced feeds with purchased feeds. For example, if roughage of average quality is available, such as alfalfa hay and corn silage, the grain ration should contain 12 to 14 per cent digestible protein. It is impossible to make up a grain mixture with this protein content with home-produced grains like corn, oats, or barley. Some additional protein is needed from another source. If the roughage is of poor quality and low in protein such as prairie or timothy hay, then the grain mixture needs to be raised to a digestible protein level of 16 to 18 per cent. This means the addition of still more protein.

In other cases one may wish to purchase a feed that adds palatability to the ration. A good grade of molasses would do this, but as a source of protein it is about the most expensive feed on the market.

Before buying a feed, ask yourself these questions: What do I need? Is it protein? Do I want to increase the palatability of some poor roughage? Do I want something bulky like wheat bran? Do I want something to fill cattle while on the show circuit like dried beet pulp? Cows need a balanced ration, which means watching the digestible protein in relation to the carbohydrates and fats, then supplying enough total digestible nutrients.

Study Feed Tag Carefully

Farmers have a difficult time separating the facts from the chaff in knowing what is in the feeds they purchase. The only guide that can be followed is the information printed on the feed tag. Although laws in most states require that this information be placed on the sack of feed, no state law can require a person to study and use the information.

Recently many feed tags attached to feed sacks were secured from different farms.

The price of the feeds were secured on a certain day and here is about the way they compared. One tag had a guaranteed analysis of:

	Per Cent
Crude protein, not less than	10.0
Crude fat, not less than	2.0
Crude fiber, not more than	15.0
Nitrogen-free extract, not less than	45.0

In this feed was wheat bran, dried beet pulp, alfalfa meal, and some minor ingredients. This feed sold for $4.40 per hundred the day the price was quoted.

The analysis is on a crude basis and the digestibility would be somewhat less. For example, the average analysis of corn is 9.7 per cent crude protein and 7.4 per cent digestible protein. Wheat bran runs 16.9 per cent crude protein and 13.7 per cent digestible protein and alfalfa hay 14.8 per cent crude and 10.5 per cent digestible. In general, about 75 to 80 per cent of the crude protein is digestible. The carbohydrates are described on the feed tag as crude fiber, which include the relatively insoluble carbohydrates that have little or no value as a feed and as nitrogen-free extract. This includes the more soluble and valuable carbohydrates such as the starch and sugars or the energy-producing feeds. Unfortunately it may contain some lignin, which has a very low feeding value. The 15 per cent crude fiber in this feed, largely from the alfalfa meal, is about twice too high for a concentrate.

One may desire to purchase this feed because of the wheat bran, dried beet pulp, or alfalfa meal it contains, and the prices should be compared on that basis, but if it is purchased as a protein supplement, the price of a pound of crude protein is 44 cents. There is in this feed about 8 pounds of digestible protein. As a protein supplement, it is high in price and it would not increase the protein level of home-grown grains.

Another feed sold in the same town on the same day had a guaranteed analysis of:

	Per Cent
Crude protein (Minimum)	16.0
Crude fat (Minimum)	2.9
Crude fiber (Maximum)	12.0
Nitrogen-free extract (Minimum)	44.0
Total added minerals (Maximum)	5.0
Calcium (Ca)	1.3
Salt (NaCl)	.8

The feed tag showed that this feed contained some of the oil meals (linseed, cottonseed, and soybean oil meals), cane molasses, wheat bran, 2 per cent urea, pulverized grain screenings, and miscellaneous minerals in minute quantities. The price was $4.35 per hundred. Compared to the other feed, it was higher in crude protein, contained 3 per cent less crude fiber, slightly more mineral, and was slightly cheaper.

Some Fat Needed

Milk cows need some fat in their rations. However, if it is not present they will get it from the carbohydrates. Grain or concentrate mixtures containing 3 to 4 per cent fat are worth slightly more per ton than rations lower in fat. Corn, as an example, contains 4 per cent fat.

The urea provides a source of some protein. Studies indicate that as a source of protein urea has about the same value as linseed oil meal. Urea is adapted only to the ruminants but should not be used in calf starter rations. It should not make up more than 3 per cent of the concentrates. At present the only practical way urea can be purchased is in a commercial feed. The pulverized grain screenings consist of broken and shrunken kernels of grain with some weed seeds. A good grade of screenings have about the same feed value as oats. Chaffy screenings are much higher in fiber and lower in feed value. If the screenings contain a high percentage of weed seeds, they may be low in feed value and even unpalatable.

This feed contains about 13 per cent digestible protein and could be used with a medium-protein roughage. This feed, however, would only slightly raise the protein content of home-grown grains. If 16 and 13 are divided into $4.35, then we find the prices of crude and digestible protein to be 27 and 34 cents a pound, respectively. This feed is still too high in fiber and contains cane molasses, wheat bran, and pulverized grain screenings in larger quantities than the oil meals which are the higher protein supplements.

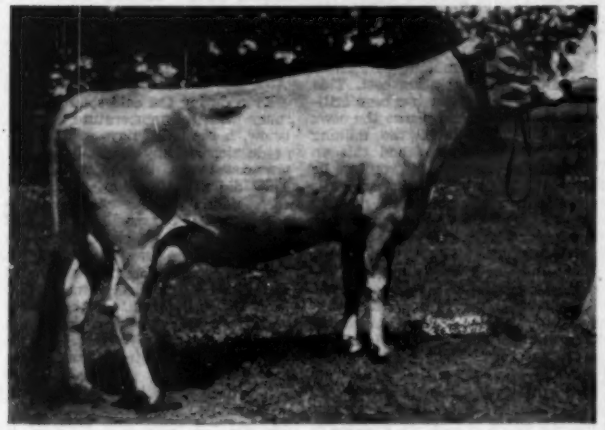
Another feed with higher protein content showed the following on the tag:

Guaranteed Analysis	Per Cent
Protein (Minimum)	32.0
Fat (Minimum)	3.0
Carbohydrates	
Nitrogen-free extract (Minimum)	35.0
Fiber	10.0

The ingredients were corn distillers dried grains, cottonseed meal, old process linseed oil meal, corn gluten feed, corn gluten meal, soybean oil meal, wheat bran, irradiated yeast, cane molasses, calcium carbonate, steamed bone meal, iron

(Continued on next page)

Oregon Jersey Milk and Fat Champion



June Volunteer Pietje B

AN OREGON Jersey cow, June Volunteer Pietje B., owned by Lindow Jersey Farm, is the new national junior 4-year-old milk and butterfat champion in the 365-day division.

The new champion produced 19,126 lbs. milk and 1,151 lbs. butterfat at the age of 4 years, 2 months. She was milked four times daily for 84 days and three times daily 281 days. The former holder of the milk title in this division was an Iowa Jersey, Raleigh's Torono's Meme, owned by Sherman Nursery Company; while the previous butterfat title holder in this division was another Oregon Jersey, Darlings Jolly Lassie, owned by Pickard Brothers. Her milk production exceeded the former title holder by 50 pounds and her butterfat production was 10 pounds greater than that of her predecessor. The former production champions had held the titles for 25 and 28 years, respectively.

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oxide, iodized salt, and cobalt carbonate. This feed sold for $4.70 per hundred. (Practically all of the ingredients are by-product feeds and vary in their protein content and palatability.)

Corn gluten meal is a by-product from the manufacture of starch. It is about the same as soybean oil meal in digestible protein, but the protein is of lower quality. Corn gluten feed is a by-product from the manufacture of corn starch, but contains only 60 per cent as much digestible protein as corn gluten meal. It is slightly less palatable than corn, oats, and wheat bran. Corn distillers dried grain is a by-product from the manufacture of alcohol and liquors from corn. It is about equal to corn gluten feed in digestible protein.

This feed contains protein from different sources and may be used to increase the protein content in a ration of home-produced grains. In this feed the crude protein costs about 15 cents a pound and the digestible protein about 19 cents a pound. The cane molasses adds palatability and this feed contains very small amounts of calcium, phosphorus, iron, iodine, salt, and cobalt. If certain minerals are needed in deficient areas, they should be purchased as such.

Protein 11 Cents a Pound

Another feed on the same day showed the following guaranteed analysis:

	Per Cent
Protein, not less than	41.0
Fat, not less than	3.5
Fiber, not more than	7.0
Nitrogen-free extract, not less than	28.0

The main ingredient was a high protein concentrate and sold for $4.20 per hundred. This feed was high in protein and for $4.20 one would secure 41 lbs. crude protein or about 37 lbs. digestible protein. If these were divided into $4.20, then a pound of crude protein would cost 10 cents or a pound of digestible protein would cost 11 cents. If 100 lbs. of this feed were mixed with 600 lbs. of corn or barley, oats and wheat bran, the mixture would contain about 13 to 14 per cent digestible protein and be satisfactory to use with a medium protein roughage.

Notice that the fiber is less in this feed than the previous ones, and the fat is slightly higher—both good characteristics. Carbohydrates or nitrogen-free extracts could be secured from the common grains.

With rising feed costs, it behooves everyone to know what he desires in the feed he purchases and then determine what that nutrient or nutrients cost him per pound compared to the same nutrients available in feeds on the farm or at the local feed supply house.

The lack of total digestible nutrients probably limits milk production more than any single ingredient or nutrient. A large quantity of fiber or filler in roughages or grain mixtures will occupy space in the cow's digestive system which should be occupied by more nutritious feeds. There is little milk in corn cobs, coarse alfalfa stems, or similar parts of plants. Grinding or adding molasses may cause cows to eat such plant portions but will not replace palatable, nutritious feeds high in nutrients absolutely necessary for growth, maintenance, reproduction, and milk production. Cows should have the opportunity of selecting only the best parts of their roughage, discarding the uneaten portion. Grain mixtures high in fiber can be improved by replacing this part with grains or by-products high in total digestible nutrients.

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Keep Tab On Your Cows

Monthly Records Two Milkings	Price of a Year's Supply
10 cows, one month	$1.25
25 cows, one month	1.75
55 cows, one month	2.00
For Three Milkings a Day	
15 cows, one month	$1.50
For Four Milkings a Day	
10 cows, one month	$1.50

Weekly Records Two Milkings	Price of a Year's Supply
10 cows, one week	$2.50
20 cows, one week	3.00
30 cows, one week	3.50

All prices include postage paid. Your check perfectly acceptable.

HOARD'S DAIRYMAN Fort Atkinson, Wis.

Ed. Robbins milks the Hartman herd.

"We Like Our Elevated Milking Stalls"

Experiences of a Montana reader with new, elevated milking stalls.

by W. J. Hartman

A COUPLE of years ago we built an elevated milking parlor as recommended by the Montana State College. This plan was such a big change from older milking barn plans we hesitated for some time; however, two of our neighbors had already built elevated milking parlors from the college blueprints and liked them very well.

We visited these two milking parlors several times and asked the owner for suggestions as to improvements. We measured all the details several times. This type of milking parlor is difficult to illustrate so if anyone contemplates building a milking parlor he would find a few days' time and travel expense on an inspection tour a good investment. Then one can get a much better idea than is possible from a written or illustrated article.

Before adopting any change in a milking barn, be sure to check with your local milk market inspectors to make certain that the proposed plan will be approved. Similar investigations should be made of any alternative markets that may be served at some future date. — Editor.

The principal advantages of this system are:

1. The cows stand 30-31 inches higher than where the milker does so there is no stooping in washing the udder or attaching and detaching the machines.

2. The milk room adjoins the milking parlor in front of the cows so one does not need to carry the milk more than 10-12 feet.

Always on a Clean Floor

3. With this system, we work from in front of the cows so are always on a clean floor. In fact, the cows are in the milking parlor for such a short time that there are very few, if any, droppings.

4. The stalls are designed to prevent the cows from moving while being milked. This is particularly important when breaking young cows to milk. The cows cannot move sideways, forward, or backward but a few inches. The stalls are built narrow and slightly wedgeshaped. The young, untrained cows are locked in a stanchion which closes onto the neck just back of the ears which keeps them from backing. The stanchion is easily closed and opened by means of trip ropes. The front of the stalls prevents the cows from moving forward.

5. The stalls are arranged in two pairs with a pit between each pair. Thus, we can milk two cows at a time without moving the machines. This saves considerable walking. We can also machine-strip two cows at a time, if necessary.

6. We do not leave the pit to let the cows in or out. Both doors are operated by means of ropes and pulleys from either pit. Each door closes automatically when we let loose of the rope. We have a door in front of the stalls so that we can step into the holding pen in case some new cow is slow about coming in. We usually let in two cows at a time. One has to be quick to let the door close as more cows may enter. It is very seldom we need to urge a cow to come in. At first, it took a few days to teach the older cows to come in when the door opened. The younger cows learn very quickly.

Grain is not Wasted

7. The grain can be fed quickly and feed boxes in front of the stalls are so designed that the cows cannot waste their grain. This is quite common in some types of stalls. The feed box is set some distance above the floor so the cow does not have to get down on her knees to get her grain. She stands very quiet while eating.

8. One man, with two single unit machines, can milk 20 or more cows per hour. This includes letting the cows in, feeding grain, washing udders and teats, milking, and turning cows out again.

9. This type of milking parlor can be built at home at a low cost. This type of milking parlor has been criticized by some folks because the cows have to back out of the milking stalls. We have not found this an objectionable feature. Cows can be taught to back out quickly in stalls where there are no deep gutters. Anyone who handles stock knows how quickly they can turn around.

We leave the long air suction hose —which is only about one-half the usual length—attached at each stall. It is much easier to carry the milking units without the suction hose.

It seems to be customary to say we work in a pit as we are about 2½ feet lower than where the cows stand; however, our milk room is on the same level as where we are milking which is quite an advantage. I have been in some elevated milking parlors where they have one to three steps to go up with the milk from each cow. That is unnecessary.

All Climbing is Eliminated

Then, too, our cows come into the milking parlor from the holding pen on the level; no ramp or slippery incline to fall on. We built the holding pen on the high side, then filled with dirt to level it up.

The front end of each stall is covered on three sides with sheet iron so the cows are not disturbed by us walking around the front and to avoid wasting grain.

Our holding pen is about 28 feet square—the back part we use for calves. We plan to extend this another 10 feet for the calves so as to have more room in the holding pen.

The milking parlor is built of pumice blocks which seem to be quite satisfactory.

The holding pen is built on treated posts set in the ground with aluminum roof. The back and sides are of edged slabs with the cracks battened.

The shed for the cows to rest in is attached to the holding pen and built very much like it. The holding shed is "L" shaped to keep the wind from blowing directly into the shed. We think it is the best plan to have it so arranged that the cows can go from the shed directly into the holding pen and from there into the milking parlor. As long as we keep the sheds well bedded once or twice a week the cows seem to be very comfortable and keep quite clean.

Forty Below Didn't Affect Cows

Even during the cold spell in February, with the temperature at forty below, a couple of days at the Belgrade airport, only nine miles away, our cows were in the open shed. They did not drop two per cent in their milk. We did not have any frozen teats or mastitis. In cold weather we have a cloth to dry the teats before the cows are turned out.

All we feed is good hay and rolled oats and barley. This seems to give just as good results as the more complex concentrate mixtures and it is much cheaper. We see that the cows can drink several times daily. Our well water is 49 degrees—quite a deep well which helps some.

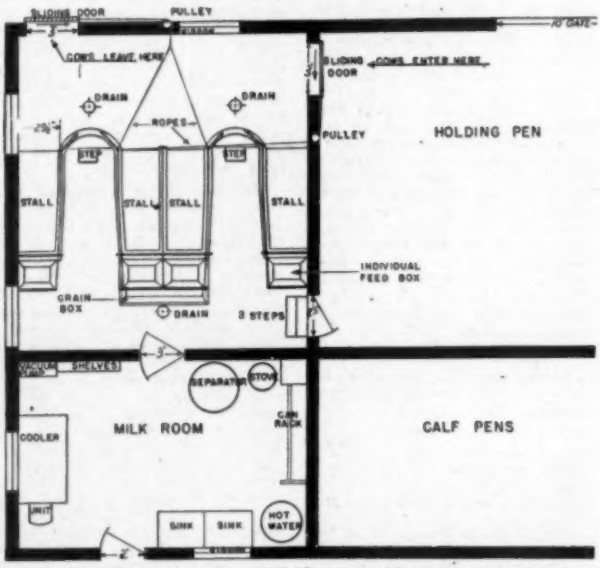
When Dr. Keyes, of the College, brought out some fifty students to see our milking parlor in operation, none of the cows were disturbed and we have two or three nervous cows, too.

The students visited another elevated parlor near us where the front of the stalls were not covered; these cows were quite upset.

Anyone contemplating building an elevated milking parlor should visit several before doing so. If you use the college blueprints, one should follow them very closely. Much time and study with careful checking was used in drawing them up. The present blueprints are much improved over the first ones.

We think the elevated stalls save many steps; enable one man to do almost as much as two men without them. One can expand his herd from ten cows to forty by just building a little more shed room and feeding racks. With us, the elevated milking parlor works even better than we thought it would. We always feel sorry for the fellow in the other type of barns.

We also believe the Montana type of elevated milking parlor costs less and is superior to any other type we have seen.



Layout of the milking parlor, milk room, holding pens, and calf pens on Hartman farm.

Ohio Fights to Protect Cattle

Prime emphasis placed on disease-free herds in move to improve cattle health.

by Floyd S. Barlow

THOSE of us who have worked and lived in the livestock business for many years know that there is no such thing as "living with" serious livestock diseases. We have appreciated for a long time that a stockman must take a positive, not a negative, attitude toward controlling and eventually eradicating a serious disease.

There have been times when the most ardent of us despaired of unified control methods, directed toward eventual eradication of brucellosis. This is to report what has taken place in Ohio recently.

The state of Ohio took a long step forward in October 1949 when Regulation No. 9 governing the movement of cattle was officially adopted. This regulation provides that, "To sell, dispose of, or to move a bovine animal over twelve (12) months of age is hereby prohibited unless such animal has passed a negative test for brucellosis (Bang's disease) within thirty (30) days prior to date of sale, disposal, or movement and is accompanied by an official certificate or record of such negative test."

The following summary clearly outlines the health requirements for cattle moving to Ohio under Regulation No. 9:

All Cattle 12 Months of Age or Older Legally Moving Within the State of Ohio, Per Regulation No. 9, Adopted October 27, 1949, Will Be in One of the Classes Below:

Origin	Slaughter Purposes	Dairy or Breeding Purposes
From a herd that has not been brucellosis tested.	No permit needed.	Negative brucellosis test within 30 days of the date of sale or movement.
Brucella vaccinated animals.	Vaccination certificate or permit Form 3B Rev. with the vaccination information entered thereon.	If vaccinated between the age of 4 to 8 months a negative brucellosis test is required after the animal reaches 24 months of age. Vaccination certificate is required until 24 months of age is reached. If vaccinated over 8 months of age a negative brucellosis test is required after the animal reaches 12 months of age. Vaccination certificate is required until 12 months is reached.
Brucellosis disease free certified herds.	No permit needed.	A statement on the Form 3B Rev. that the cattle originated immediately and directly from a certified herd, giving the last test date and certificate No. or a negative test within 30 days of date of sale or movement.
From a herd that has had a negative test for brucellosis in the past 12 months and is in a modified certified area.	No permit needed.	A statement on Form 3B Rev. that the cattle originated immediately and directly from an eligible herd in one of the modified brucellosis disease free certified areas of Ohio or a negative brucellosis test within 30 days of date of sale or movement.
BRUCELLOSIS REACTORS	TAGGED, BRANDED AND ACCOMPANIED BY PERMIT.	CANNOT BE SOLD FOR DAIRY OR BREEDING PURPOSES.

ALL ANIMALS MUST BE PROPERLY IDENTIFIED ON ALL FORMS

Another important provision of the regulation is that "all officially vaccinated cattle sold, disposed of, or moved for purposes other than immediate slaughter, must be accompanied by a certificate of vaccination or a record of negative blood test."

This is a provision that certain interests wish to by-pass and will be referred to later.

The only exceptions to this regulation are animals sold for immediate slaughter or cattle shown at fairs within the state. (Exhibition cattle must comply with special regulations and return to farm of origin or be sold in compliance with Regulation No. 9.)

Regulation No. 9 was one of the first of its kind in the United States to control the intra-state movement of cattle. It is unique in that its adoption resulted from the requests of livestock interests. Since its adoption a number of other states have taken similar action or are considering same. The most recent was a law passed by the state of Delaware, effective July 1, 1951. This law prohibits the sale of cattle for dairy or breeding purposes which are not negative to the brucellosis test or which have been officially vaccinated, as calves between four and eight months of age.

The pure-bred beef cattle associations of Ohio have presented a resolution to the Director of Agriculture in which they request a modification of Regulation No. 9, that would recognize adult vaccination as official and permit the free movement of such adult vaccinates without a negative test. Such a change would affect the entire cattle industry. Since only pure-bred beef cattle interests are asking for the modification, it would appear to be a request for concessions to special interests. It is believed the adoption of the suggested changes would in effect jeopardize the brucellosis control program, by permitting animals of questionable or unknown brucellosis status into free trade.

A special committee of the U. S. Livestock Sanitary Association has published its findings under the caption, "What Is Known About Brucellosis." In that pamphlet adult vaccination is stated as being used mainly to halt abortion storms or reinforce the resistance created by calfhood vaccination.

This report states that the adult vaccination referred to cannot be depended on to halt threatened abortion storms because the resistance builds up slowly as in natural infection. As yet the vaccination reactions cannot be distinguished from reactions due to natural exposure. The report further states that adult vaccinates require many months to lose reacting titers which in some instances remain for the life of the animals.

The committee, therefore, points out that adult vaccination as a means of brucellosis *eradication* is without sound scientific evidence.

Several meetings of groups interested in brucellosis control have been held in Ohio, following the request of the pure-bred beef cattle interests. Feeling has run rather high, especially among leaders of the dairy service units, the Ohio Dairymen's Association, and pure-bred dairy cattle interests. These folk would prefer Regulation No. 9 *more stringent* rather than have measures inserted that would leave an opening for practices that might retard eradication. It is very evident that those qualified to know, believe the movement of adult vaccinated cattle in free trade would endanger brucellosis-free cattle.

It is quite apparent that the sole interest of the pure-bred beef breeders is to modify Regulation No. 9 to make it easier for them to sell cattle rather than give their support to approved programs for the control and eradication of this disease.

Ben Franklin was the son of a soapmaker, and wrote that he regarded that industry as not only a profitable enterprise but also "a means of improving human welfare." One of his thirteen rules of conduct was: "Tolerate no uncleanliness in body, clothes, or habitation."

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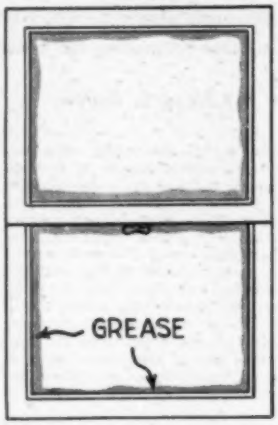


Before you start painting around windows and mirrors, put grease (any kind) along the edge of glass where one is always apt to smear a little paint when painting woodwork around it. Any paint you might get on the glass will easily and quickly wipe off when the other paint is dry.

Colorado. I. V. HOOPES.

TIN CANS FOR TOMATOES

I cut the tops out of tin cans and then cut the bottom nearly all the way around — leaving it connected to the can in one spot. I then plant my tomato plants in the cans and when they are large enough to push the bottom of the can out, I set them out in the garden. I take the bottom of the can completely off, but leave the plant in the cylinder and set them in the ground so that about an inch of the can sticks above the level of the ground. The roots grow out of the bottom of the can and the cutworms are fenced away from the tomato plants. Also, the tiny roots are not disturbed when they are transplanted.

Missouri. L. DAVIS.

"AROUND THE CORNER" STEPS

This "around the corner" steps idea was instituted by this homeowner as a safety feature, especially for children, mounting the steps in a hurry. It also eliminates sharp corners on the steps and the usual danger of falls against sharp protusions. Square forms were set for the concrete and heavy galvanized iron used to round the corners. Cost of building was only slightly higher.

Illinois. GROVER BRINKMAN.

LET COWS CLEAN MANGERS

We sprinkle our concrete feed troughs and mangers with salt to get the cows to lick them perfectly clean, thus eliminating cleaning the meal off - and having a sanitary trough at the same time.

It is very simple and only takes a few minutes (3 minutes for 14 stanchions). We hold a thumb on the end of the water hose to form a fine spray and walk down the line to spray the manger lightly. Then we take a small bucket of salt and sprinkle it on by hand (a very light covering). Do this weekly or every two weeks and the cows will do your cleaning job for you. The system is very helpful in the summer when no silage is fed. When silage is fed, most cows will keep the manger clean anyway, but it seems to help keep the trough more sanitary and we think it is worth the trouble anytime. REX C. CAMPBELL.

North Carolina.

Milk Control Programs Are in Public Interest

(Continued from page 390)

orders and many of the state orders fix only the prices that dealers pay for milk and leave retail prices and dealer spreads to be fixed by competition. Moreover, democratic methods of adopting, changing, and ending the orders are generally followed, he says.

So far, federal milk control has not been centralized too much in Washington, and it is hoped that the decentralized plan of administration will be continued, Dr. Spencer says, since it is more flexible, more adaptable to local conditions, and less bureaucratic. He urges also that the tendency for federal regulation to be extended to markets that have little or no interstate commerce in the usual sense should be halted. His view is that federal regulation should be limited principally to the larger markets whose milk supplies are drawn from more than one state. Smaller markets that have no significant bearing on national milk prices should be left unregulated; or, if necessary, should be regulated by the respective states.

Much closer collaboration between federal and state milk control officials is needed, according to the author of this report. This can be brought about more quickly and completely if the two groups can agree upon a general policy of the proper limits of federal jurisdiction.

Dr. Spencer feels that the responsibility for fixing and enforcing the prices paid by milk dealers had to be taken over by the government at least in the large city milksheds. He says that both federal and state milk control programs have had serious faults, but indicates that on the whole these programs have been in the public interest.

Correction

We regret that an error was made in one of the records listed for Caumsett Ocean Glee, the "A" cow in the Guernsey judging contest class. Her mature equivalent record as a senior 3-year-old should have been 13,468 lbs. milk, 682 lbs. butterfat instead of 13,310 lbs. milk, 511 lbs. butterfat, as published in the April 10 issue.

Preserve The Pasture Fence

How a New York dairyman, A. J. Hulett, treated fence posts for long service.

by E. C. Grant

WHY build a new pasture fence every five years? With post preservation treatment the fence can be made to last fifteen to twenty years, even when poor post woods are used.

About six years ago A. J. Hulett, Jr., of Chemung County, New York, built a new pasture fence using dry chestnut posts. This spring he inspected the posts below the ground level and found them as sound as they were the day that he drove them. He was pleased.

The reason for their soundness was that he had treated the posts. Evidently the preservation treatment is paying off, for he has a good solid fence even though it has stood longer than he could expect untreated chestnut posts to stand.

Used Pentachlorophenol

Mr. Hulett used a pentachlorophenol concentrate diluted with used crank case oil on his posts. This was mixed one gallon of the concentrate to four gallons of the oil. The mixture was placed in an old oil drum and the posts stood in the liquid so that they were covered to a height of one foot above where the ground line would be. They were left there two to three days, removed, allowed to dry, and were then ready to use.

Had he wished, Mr. Hulett could have turned the posts over and treated the other end. He did not do this because he had observed that posts usually rot and break just below the ground level. Treating but one end saved material and cost.

Should Last 20 Years

According to the Forestry Department at Cornell, a post should last twenty years. Few woods will, however, last that long without treatment. Red cedar or black locust will last longer than other woods commonly used and should give service for twenty years. White oak, white cedar heart wood, and honey locust are credited with ten to twenty years of use. These need no treatment. Rock oak, hemlock, tamrack, European lorch, and slippery elm may last five to ten years. Posts of other woods such as birch, maples (red or sugar), elm, black oak, basswood, ironwood, beech, and chestnut are likely to rot in five years or less.

To save labor in fence repair and to put off the day of building a new fence, posts may be given a preservation treatment. By so doing some of the poorer woods may give as much as fifteen or even twenty years of service and equal the better post woods. Treating posts costs money. It takes labor. Sometimes it's a rather "messy" job. But it pays to do it.

For fresh-cut, green posts, with bark on and not split, chromated zinc chloride is the material most highly recommended. This is used in what is known as the gravity method. A ten per cent solution is made with one pound of the material to a gallon of water. This is placed on top end of the posts in containers as inverted glass jars, or a tire tube stretched over the top, and the solution is allowed to soak down into the post by the pull of gravity. It can be used at any time except when the wood is frozen.

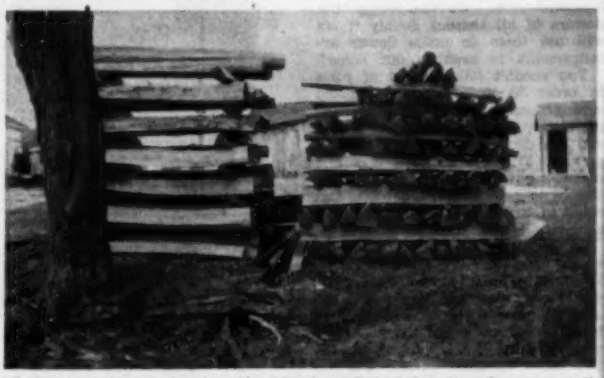
Sometimes a similar solution of copper sulphate is used for green posts.

Seasoned split posts or seasoned posts without bark are treated with pentachlorophenol. This is recommended because of its penetrating powers. Although it can be used without heat, a better penetration will be obtained on hot days. The method recommended for using it is the same as that which Mr. Hulett used. Some farmers prefer to treat both ends of the post. It may be diluted with kerosene, light fuel oil, or filtered crank case oil. The crank case oil is the cheapest.

The amount of material absorbed by the posts is surprising and will depend on the size, condition, and kind of wood. A fresh-cut post four inches in diameter and six feet long will absorb some four pints of the chromated zinc chloride solution. A dry one of similar size will absorb about three pints of the pentachlorophenol solution. They should be allowed to absorb all of the solution that they can.

The cost, too, will depend on the kind of material used and the amount absorbed. It will vary from 25 to 35 cents per post.

Many farm service stores stock the materials which are sold under various trade names.



Whether these chestnut posts last 5 or 15 years will depend on how they are treated.

Immunity Is The Wrong Word

Vaccination for Bang's can be expected to provide resistance but not immunity to the disease.

by J. W. Bailey, D.V.M.

NOWADAYS there seems to be a growing tendency to think of calfhood vaccination against Bang's disease in terms of resulting immunity. This sort of thing distresses us no end, for immunity is the wrong word. It's probably a natural choice, though, since a great many people associate the word with vaccination of any kind. Be that as it may be, we don't like to hear it used, for there's only one class of cattle that is ever really immune to Bang's disease.

This class is made up of those rare animals that recover after having been infected with honest-to-Pete Bang's disease. We once believed that "once a Banger, always a Banger," but experience has taught us that this isn't necessarily the truth. We don't know how many animals recover from Bang's disease and again become non-reactors and non-spreaders. There may be one in ten thousand or a hundred thousand or even larger numbers, but recoveries do occur once in a while. Such recovered animals will never get Bang's disease again and they are the only ones that are really immune to the infection.

Vaccinated animals can't be considered as immune for they can't be depended on to remain free of Bang's. This shouldn't be too surprising, for they've never had the disease. Instead, they've been vaccinated with a different kind of Bang's germ that is much weaker than the one causing the barnyard variety of contagious abortion. In fact, these weakened germs aren't likely to cause abortions at all. They do cause the formation of antibodies in the blood that are much like those resulting from infection with the more dangerous germs. Things operate along pretty definite lines.

A Light Form of the Disease

Vaccination means the injection of slightly different living germs that cause an extremely light form of Bang's disease. This causes the vaccinates to become reactors to the blood test the same as if they had actually been infected with the real Bang's disease. Within a few months such animals usually become negative to the blood test again, although possessing enough antibodies to give them considerable resistance to the regular variety of Bang's germ. That word "resistance" is a mighty appropriate one. It's unfortunate that it's been so largely replaced by "immunity" for the substitution has caused too much to be expected from calfhood vaccination.

Reliance on immunity that didn't exist has caused trouble for a lot of owners and led them to condemn vaccination as worthless. This is hardly fair, for vaccination must be considered as a big help in any program of Bang's control. Maybe a few brief statements will help to make it better understood.

It's impossible for vaccination to give immunity against Bang's disease because animals are infected with a different kind of germ. It will give a certain amount of increased resistance because of antibodies that are produced in the blood.

Invaders May Be Too Strong

However, these antibodies are weak, so it will take a lot of them to prevent infection by actual Bang's germs. If the number of invading germs is low, the antibodies will probably take care of them all right. Resistance will be apt to break down under heavy doses of infection, and vaccinates can then be expected to start aborting.

That suggests an important point. Resistance has a tendency to slowly decline after vaccination and animals consequently become more susceptible to infection. Haven't you heard owners tell that vaccination worked splendidly for them in the beginning but eventually proved worthless? Well, this declining resistance was probably part of the reason for failure. There's generally another factor involved in such stories, too, although it's seldom mentioned.

In most cases it turns out that existing infection has not been reduced in proportion to decreasing resistance. In the mistaken belief that vaccinates were immune to infection, reactor animals have often been retained indefinitely. There is seldom any decrease in the number of germs thrown off by Bang's reactors, so trouble is a logical sequel to their continued mingling with vaccinates. Eventually the infection must be expected to exceed the resistance given by vaccination, and a supposedly "immune" animal shows up as a reactor. A bad situation can be expected to grow worse after the first breakdown, for every infected animal will make the infection that much heavier. We have known cases where it became so bad that even recently vaccinated animals were unable to withstand it.

From a practical standpoint, cattlemen might as well recognize certain facts about calfhood vaccination.

1. Vaccinates aren't safe indefinitely with reactors. The "Bangers" aren't likely to become less dangerous as spreaders while the vaccinates are becoming more susceptible. A practical program calls for gradual removal of reactors to reduce infection as resistance runs out.

Vaccine Alone Not Enough

2. There just isn't any such thing as an easy way to control Bang's disease. Regardless of the type used, it is unlikely that the disease will ever be wiped out by the use of vaccine alone. Sanitary measures will always be an important part of any successful eradication program.

3. There's no such thing as immunity following vaccination. You might just as well start thinking less about it and more about resistance that gradually disappears.

Dairy Farm Home

Quick and Easy Flower Arrangements

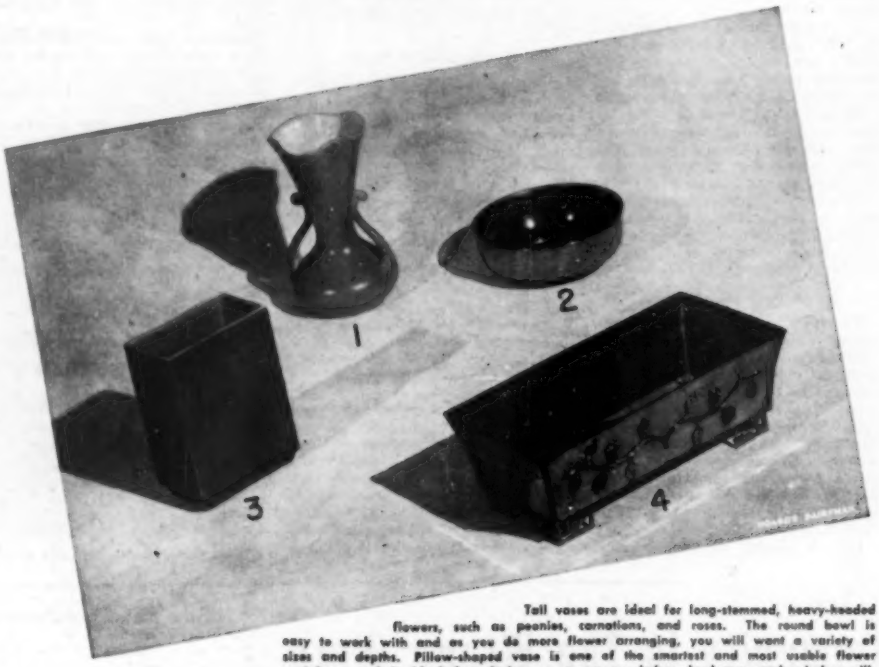
by Frances Mallory

IT'S wonderful to have flowers blooming in our yards and gardens once again! Even though we think we appreciate the first blossoms most, we can enjoy the flowers of all seasons doubly if we will use them to make flower arrangements to beautify our homes.

You needn't follow a set of rules in order to make attractive floral arrangements. You can arrange flowers in as many different ways as you can decorate a room or paint a picture. There is no right way and no wrong way. If you but follow the basic principles of balance and color in arranging flowers you will achieve pleasing results.

In the first place your flower arrangements will be guided by the kinds of flowers available in your garden at the time you make the arrangement. The colors that look best in your home and the place you plan to use the arrangement are two more valuable guides. For instance, the soft, pastel colors of roses may be ideal in your home if it is traditional, but the sharp, bright colors of zinnias are more appropriate in a modern home decorated in clear, bright colors. Then, too, you will make a different type of an arrangement for the mantel than you will for a centerpiece for the dining room table.

The type of flowers to be arranged and the feeling you wish to achieve will indicate the type of container for you to use. It is ideal to have several bowls from which to choose. The four basic types are shown in the photograph at right. You will do well to start with one of each type and enlarge your collection gradually. Be sure the bowls you choose are simple. Always let the flowers be the most interesting part of the arrangement. Choose bowls with simple lines and shapes—avoid ornate bowls with curves and fancy decorations.



Tall vases are ideal for long-stemmed, heavy-headed flowers, such as peonies, carnations, and roses. The round bowl is easy to work with and as you do more flower arranging, you will want a variety of sizes and depths. Pillow-shaped vase is one of the smartest and most usable flower containers and is ideal for placing on a narrow ledge, bookcase, and window sill. Rectangular bowls of varying depths are useful for all types of flowers and greenery.

Choose flower bowls in colors found in the flowers themselves. For instance, the same greens, yellows, browns, and black that are the natural background colors for flowers make the most attractive colors for flower bowls as well.

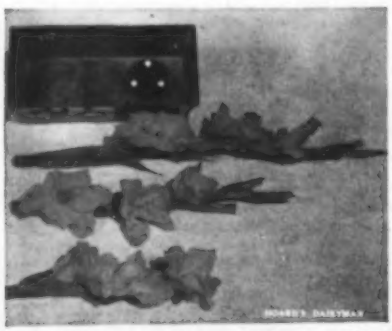
The three general classifications or ways of fixing flowers are traditional, modern, and oriental.

Traditional is probably the easiest for most people because it is the most informal and, therefore, the most natural way to arrange flowers. In traditional arrangements no two flowers are at the same height, yet there is space enough between blossoms so that each may be enjoyed individually. The larger, heavier looking flowers are placed at the base, the buds and smaller flowers are placed toward the top for balance and interest.

In the modernist trend is the tendency to group masses of color and to use contrasting textures to create interesting lines and shapes within the floral arrangement. It is not uncommon to peel the natural foliage from the stems of the flowers and to use a foreign foliage for a special effect in a modern arrangement.

In the oriental tradition an odd number of stems are required and the triangular form is followed. The longest stem forms the peak of the triangle. Next come two shorter stems placed at right angles to each other. The remaining flowers are cut to different lengths and placed within the triangle. Because the oriental trend is so popular we have chosen it for the step-by-step illustrations pictured on this page.

THE END



Cut three stems of flowers in varying lengths as shown. Place needlepoint holder off center in container and arrange the three stems so they outline a triangle on the holder in positions indicated by the white dots.

Longest stem, placed back farthest on holder, will form peak of another triangle when viewed vertically. Place the two shorter stems at right angles, pointing toward your shoulders, so blossoms face up to highest flower.

Oriental arrangements must contain odd number of stems. With this in mind, fill in flowers, keeping point of original triangle as basic shape. Clear space between highest and lowest stems will keep design from looking cluttered.

Rearrange Your Closets for Efficiency

by Jean Wallerius

BEFORE you pile more clothes into storage spaces, why not stop and study your storage picture. You may need to just make better use of the space you have or you may need to face the fact that you must have more storage space.

There are eight points you should consider before you take action. First, you want to have the clothes you use most very available. If you have an out-of-the-way storage space, you can use it for out-of-season garments. By putting away summer clothes in the winter and firmly disposing of unnecessary or seldom-worn things, you will have more room in your closets.

When reorganizing contents of closets, plan for at least two coat closets. One near the front entry can be used for your good wraps and guests' coats. Another near the back door can hold work clothes and rainy weather equipment.

Ideally, each family member should have a clothes closet. However, if two people must share one, be sure there is a rod for each person.

Examine your closet for efficiency. Are rods, shelves, and hooks placed so that you can keep clothes in good condition? In children's closets particularly, it is important that clothes are easy to get at and to put away. Hooks and rods for little people should be low enough for them to reach, and adjustable so they can be changed as the children grow.

There are many accessories on the market now that demonstrate how to save space in the closet and make use of every available inch. If your budget does not allow for the purchase of tie, shoe, or hat racks, extended skirt and blouse hangers and trouser holders, perhaps you can imitate them with materials from around the house.

Closets should be easy to clean. By using racks, bags, and hooks, and other closet accessories, you can keep everything off the floor and simplify cleaning.

Your clothes need to breathe. They need air, so your check should include facilities for good ventilation. Air may be kept in motion if there is a window in the closet which can be opened. Openings at the top and bottom of the door will help or you can leave the door open for a short time each day.

Light inside the closet also is important. If you have no light, you can run an extension cord in or install a flashlight type fixture with a battery of its own.

If you plan your clothes storage space, you'll save steps and time. You'll find you have more room and you'll enjoy clothes that come out of the closet ready to wear because they have been stored correctly.

. . HANDY HINTS . .

IRONING BOARD CONNECTS TO THE WALL

An ironing board can be arranged for connecting to the wall for the duration of work being done, then readily removed and packed in small space by using the method shown here. A staunch front leg is arranged with a folding bracket, and the rear end of the board is fitted with an angle iron which projects over a little way at each side. A row of holes is drilled and countersunk in one of the legs of the angle iron to allow attaching it permanently to the back end of the ironing board.

Two keyhole-like slots are made in the other leg of the angle iron so that when they are pushed over the heads of partly-driven screws in the wall, then allowed to drop down, the narrower portions of the slots will engage firmly over the screw bodies behind the screw heads. If found necessary, bottle corks of suitable size can then be placed in the open-hole portions of the slots below the screws. The corks will prevent all jiggling of the rear end of the board while one is working on it.

Illinois. J. E. HYLER.

CLEANING SOOT FROM CARPETS

Before attempting to remove soot from a rug or carpet, first cover it with a generous layer of kitchen salt. The soot can then be swept up with the salt, and there'll be no tell-tale smudge to show where it lay.

Wisconsin. LEROY M. MEYER.

TO AVOID SOILING BEHIND PICTURES

An extension specialist in home furnishings says it is very easy to prevent soil marks behind pictures. Anna Biebricher, at Ohio State University, says to put a thumb tack at each lower corner of the frame on the back. Let the heads of the tacks project about ⅛ inch. The tacks hold the frame out from the wall far enough to permit air to circulate freely around it. Little or no dust will accumulate on the wall.

It's a simple trick and easy to perform, but one that really gives results.

To prolong wear of curtains, make curtain hems of equal width top and bottom so they may be reversed occasionally, equalizing the wear.

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VEL

BUY ECONOMY SIZE VEL FROM YOUR GROCERY DEALER

Ideas For a Party

by Marjorie Scholz Christoph

HAS one of your friends bought a farm, paid off a mortgage, taken a trip, or received some honor? Has a new family moved into the neighborhood? Celebrate! You don't need an excuse for a party but it's always fun to have one and there is time now for a get-together with some friends before the heavy work makes Dad too tired in the evening to stay up a few extra hours.

Like every season on a busy farm, spring is rushing on us again. There are so many things to be done, it is easy to keep busy with tasks around the house and plans for the garden and yard. Woman's work, it is true. But it also falls on the woman's shoulders in most families to plan the amusements and provide the entertainment that will keep the hearts at home gay.

Birthdays deserve special attention. If there happens to be a family birthday soon, celebrate that; if not on the date itself, then on another day of the same week which is more convenient. If it is a child's birthday invite one of his young friends and parents. It will not be as wild an affair as an all children's party and the whole family can share the fun. While the children play, the grown-ups will enjoy the stimulating experience of exchanging ideas and anecdotes with each other.

Surprise some one with a party in their honor. It will be a refreshing interjection for late winter weariness and a treasured memory for the honored guest for years. So ask the neighbors in. Show the family how proud you are of them and see how proud they will be of you when you sparkle forth in that new apron and serve something that is new or just a little different for the climax of a jolly evening.

What to serve is almost the most important question for the hostess. If you have been to a big city in the last year or so, you can't help but have noticed the great popularity of a new-to-Americans dish called "pizza" or "pizza pie". It is Italian in origin, very good to eat. We tried it on one of our holidays to Chicago and came home wishing we could bring some along to share with our friends.

The real pizza calls for Italian sausage and seasonings, ingredients not readily available, we discovered. This is a casserole of similar flavor, made with staples most of us have or can easily purchase in the town where we shop. It is unusual, however, and has the spice of novelty your guests will enjoy. Best of all, it can be prepared in the morning or afternoon of the party, refrigerated, and slipped into the oven to finish cooking before serving. Allow about half an hour extra cooking time to bring the cold ingredients back to hot temperature, stirring a few times to facilitate quick heating. Of course, a casserole of pottery or glass must first be allowed to return to room temperature or the sudden expansion in the hot oven will cause breakage.

Italian Casserole

1 green pepper
1 lb. ground beef
2 tablespoons oil or lard
½ lb. aged Cheddar (American) cheese
1 small onion
½ cup sliced stuffed olives
1 clove garlic
½ cup sliced ripe olives
¼ cup olive liquid
¾ lb. spaghetti
2½ cups canned tomatoes
½ teaspoon salt
¼ teaspoon pepper

Chop green pepper fine and blend with ground beef. Brown well in oil, stirring over moderate heat. Grate cheese, onion, and garlic and combine with meat and sliced olives and olive liquid. Meanwhile cook spaghetti in boiling salted water. When tender, drain and combine with meat mixture. Add tomatoes, salt, and pepper. Pour into large greased casserole (about 3 quart size) and bake at 350 degrees for 45 to 60 minutes. Serves 6 to 8.

Note: Look for so-called "salad olives" in your market. They are broken and odd sized olives, much less expensive, and in recipes such as this where flavor, not appearance, is important they are quite satisfactory.

If your party refreshments will be one of the three meals of the day, serve a casserole of corn pudding and baked potatoes with the main dish. If it is a late evening snack however, crusty rolls or bread and butter and jelly, milk, or coffee and dessert are enough accompaniment. An old favorite dessert, ice cream, would be a perfect finishing touch to this meal. Perhaps for a birthday you will serve both ice cream and cake.

This recipe for vanilla ice cream is one of the easiest and best I have ever tried for a refrigerator. If you would make it a real Italian evening, transform the basic vanilla into "Spamoni" by folding diced candied fruit and chopped nuts into the almost frozen cream at the last stirring.

Vanilla Ice Cream

(With Spamoni variation)

2 eggs
½ cup sugar
½ cup light corn syrup
1 cup top milk
1 tablespoon vanilla
1 cup heavy cream, whipped

Beat eggs until light and thick. Add sugar gradually while beating. Then add light corn syrup, top milk, and vanilla. Fold in whipped cream. Pour mixture into freezing tray. Set indicator to coldest position. When almost frozen scrape into chilled bowl. Beat quickly with hand or electric beater. At this point, if Spamoni is desired, fold in ½ cup diced candied fruit and ¼ cup chopped nuts. Quickly return to refrigerator tray and allow to finish freezing. Serves 6 to 8.

Once you get in this party mood and discover how much fun it is having everyone enjoy themselves at home, you may want to do it again. For a party honoring the young people you can hardly do better than serve those favorites of young people "hot dogs". This recipe parties them up a bit. They can be prepared and ready for the broiler ahead of time.

Cheese Stuffed Broiled Franks

1 lb. frankfurters
¼ lb. cheese
10 slices bacon
Wooden picks

Cut each frankfurter partially through lengthwise. Cut cheese into strips and place in the opening of each frankfurter. Wrap each with slice of bacon, fastening with wooden pick. Place stuffed side down on broiler rack and broil about 6 minutes. Turn and broil on other side until done. Serve immediately.

A chocolate dessert is enjoyed universally. This recipe which makes its own fudge sauce is sure to be enjoyed by young and old alike.

Baked Chocolate Pudding

1 cup flour
½ teaspoon salt
¾ cup sugar
2 teaspoons baking powder
4½ teaspoons cocoa
2 tablespoons melted butter
1 teaspoon vanilla
½ cup milk
½ cup chopped nuts

Cocoa Mix

½ cup granulated sugar
½ cup brown sugar
6 tablespoons cocoa
1 cup water

Sift flour, measure and sift with salt, sugar, baking powder, and cocoa. Combine the melted butter, vanilla, and milk and add to dry ingredients. Add the nuts. Pour into a well buttered baking dish (5x9 inches. Cover with cocoa mix. Pour water over all and bake in a moderate oven (350) for 40 minutes. Serve with whipped cream. Serves 6.

Next to being certain that your friends enjoy themselves, the most important thing for the hostess to remember is that she should enjoy herself. So, keep it simple, prepare as much as possible in advance, and relax. But do plan a party, keeping in mind the advice of that currently popular song, "It's later than you think".

YOUNG PEOPLE'S SUPPER MENU

Cheese Stuffed Broiled Franks
Rolls Butter
Fruit Filled Gelatin
Baked Chocolate Pudding
Milk

LATE EVENING MENU

Italian Casserole
Crusty Rolls
Butter Jelly
Ice Cream
Milk Coffee

Child Can Be Taught to Enjoy Mealtime

Mothers who say, "I can't get my child to eat," may find help from some tips given by home economists at Michigan State College.

Children should want to eat, they point out, since eating is a natural process. If a small child refuses food, it may be because he has satisfied his hunger by eating sweets between meals. He may not feel well, his eating time may be irregular, he may be too tired, or has had too little exercise.

The home economists suggest training the child's appetite by serving meals at regular times with no "piecing" between meals. Other methods are to serve small amounts of food, to offer only one new food at a time with a food that he does like, and to make mealtime a happy occasion.

If other members of the family set a good example by eating the foods their bodies need, small children will often follow suit. When a child refuses a food, parents should not make an issue of it, but act as though they expect the child to eat the foods he is served.

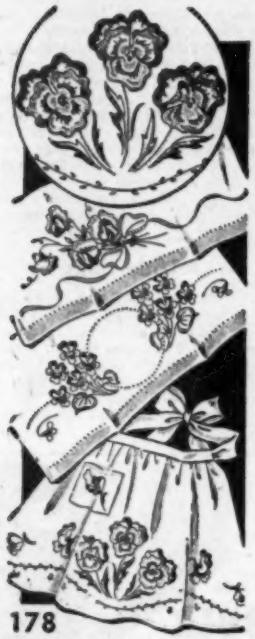
Severe punishment for failure to eat may make matters even worse, for the child may develop a dread of mealtime.

Treat mealtime as a pleasant time of family gathering and the child will soon realize that he should eat when the others do.

Chewing Gum Helps

If a speck of matter falls on a painted surface which is still wet, it can be removed by touching it lightly with a stick of wood tipped with a ball of fairly dry chewing gum. The speck will stick to the gum and the paint will flow together again.

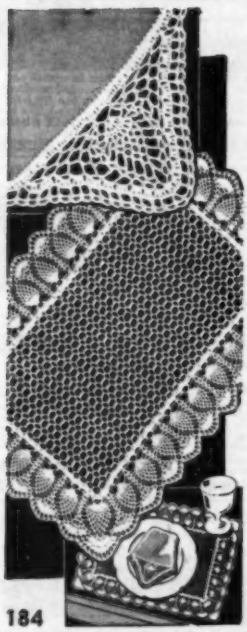
Pansies, Sweet Peas, Violets



A veritable bouquet of spring and summer! Handsomely colored two-inch pansies—wondrously shaded big sweet peas and big bunches of purple violets with yellow heart centers will provide you with sufficient embroidery designs to make three sets of trousseau pillowcases or gifts of guest towels, aprons, tea or luncheon table linens.

Send 25c for pansy, sweet pea and violet embroidery transfers (Pattern No. 178) color chart for embroidering all three to Pattern Department, Hoard's Dairyman, Fort Atkinson, Wis.

Crocheted Table Set



The ever-popular "pineapple" crochet design has been worked as a border on this handsome, well-styled place mat and matching napkin set. Each individual mat measures 12 by 17 inches; matching napkins are of linen 13 inches square and have a single corner design to match place mat.

Send 25c for the pineapple design table mat set (Pattern No. 184) enlarged photographic section and detail for easy working complete crocheting instructions to Pattern Department, Hoard's Dairyman, Fort Atkinson, Wis.

Rebinding Worn Rugs

"Carpets and rugs are quite a large item for anyone's budget, so it pays to make the ones on hand do as long as possible," asserts Miss Dorothy Iwig, home furnishings specialist, University of Illinois College of Agriculture. "It's important, too, to make amends promptly for wear or misuse."

Frayed edges, worn hems or fringe—such damages as these are often among the first to develop. They can be repaired by sewing on new carpet binding.

Starting where the damage is deepest, cut off the worn edges of the floor covering. Large shears or, if you're careful, a single-edge razor blade or knife may be used, and cutting should be done from the wrong side, following a crosswise or lengthwise yarn as the case may be. Overcast the raw edge.

To sew on the binding, lay its right side against the right side of the carpet, edges even. Using a heavy darning needle and carpet thread and working from the wrong side of the carpet, sew them together with slanting stitches. The needle should come out through the binding about one-eighth inch from the edge. Fold the binding to the underside and sew the loose edge to the carpet back, catching only a few yarns of the carpet; or you may fasten the binding with household cement.

People Will Talk

You may get through the world, but 'twill be very slow,
If you listen to all that is said as you go;
You'll be worried and fretted and kept in a stew,
For meddlesome tongues will have something to do,
For people will talk.

If quiet and modest you'll have it presumed
That your humble position is only assumed:
You're a wolf in sheep's clothing, or else you're a fool,
But don't get excited, keep perfectly cool,
For people will talk.

If generous and noble they'll vent out their spleen,
You'll hear some loud hints that you're selfish and mean,
If upright, honest, and fair as the day,
They'll call you a rogue in a sly, sneaking way,
For people will talk.

And then if you show the least boldness of heart,
Or a slight inclination to take your own part,
They will call you an upstart, conceited, and vain;
But keep straight ahead, don't stop to explain,
For people will talk.

If threadbare your clothes, or old-fashioned your hat,
Somebody will surely take notice of that,
And hint rather strong that you can't pay your way;
But don't get excited whatever they say,
For people will talk.

If you dress in the fashion, don't think to escape,
For they criticize then in a different shape;
You're ahead of your means, or your tailor's unpaid;
But mind your own business, there's naught to be made,
For people will talk.

Now the best way to do is to do as you please,
For your mind, if you have one, will then be at ease;
Of course, you will meet with all sort of abuse,
But don't think to stop them, it ain't any use,
For people will talk.
—Scottish Rite Bulletin.

Fresh Paint Odors

To kill the odors of fresh paint in a newly refinished room, fill a paper bag with a pound or two of charcoal and leave it in the closed room. The charcoal absorbs the odor.

2359. This versatile cotton features crisp ruffles around the round yoke—to frame and flatter the face in a very feminine way! Sizes 10-20. Size 16, 3¼ yds. 35-in. fabric.

2448. A playsuit is twice as practical for daughter when it has a matching dress that is easy-to-don for the street! Sizes 1, 2, 4, 6. Size 2 dress, 1½ yds. 35-in.; suit, ⅝ yds. 35-in.

2437. Something new under the sun is the scoop-neck and sleeveless dress with sheltering bolero. Here, with soft unpressed pleats. Try chantung. Sizes 10-20. Size 16, 5 yds. 39-in.

2038. Seamless shirtwaist with neat cuff detail . . . and new long pleats, front and back, for extra walking ease. Sizes 12-20, 36-44. Size 18, 4⅝ yds. 35-in. or 3⅞ yds. 39-in.

2138. This tailored sundress, front buttoned, has a new teammate—a little matching apron that you can quickly don for chores. Sizes 12-20, 36-46. Size 18, 4½ yds. 35-in.

2439. An especially easy to make casual accented only by buttoned band trim. No collar, no set-in sleeves! Sizes 10-20, 36-46. Size 16, 3¾ yds. 35-in., 1⅛ yds. trim.

2401. Dressed up basque dirndl—done so simply with ruffled berthe collar, ruffled hemline. Sizes 2-8. Size 4, 2½ yds. 35-in., 3¾ yds. trim. Panties, included, ⅝ yd. 35-in.

2334. Because of its simple styling, you can make this back-interest sundress—with bolero—in both day and dainty materials. Sizes 9-17. Size 13, 5¼ yds. 35-in. or 4⅛ yds. 39-in.

NO PATTERNS EXCHANGED. Send 20 cents for each pattern to Pattern Department, Hoard's Dairyman, Fort Atkinson, Wis.

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Danger of Disease Among Baby Chicks

Readers are warned to exercise every sanitary precaution and beware of infection in the drinking water. Baby chicks must have a generous supply of pure water. Drinking vessels harbor germs. Drinking water often becomes infected with disease germs and may spread disease through your flock before you are aware. Use preventive methods—use Walko Tablets. For over forty years thousands of poultry raisers have depended upon them. You, too, can rely on Walko Tablets as a valuable antiseptic to aid in preventing the spread of disease through contaminated drinking water.

You Run No Risk

Buy a package of Walko Tablets today at your druggist or poultry supply dealer. Use them in the drinking water to aid in preventing the spread of disease through contaminated water. Satisfy yourself as have thousands of others who depend upon Walko Tablets year after year in raising their baby chicks. You buy Walko Tablets at our risk. We guarantee to refund your money promptly if you are not entirely satisfied with results. The Waterloo Savings Bank, the oldest and strongest bank in Waterloo, Iowa, stands back of our guarantee. Sent direct postpaid if your dealer cannot supply you. Price 60c, $1.20, $2.50 and $4.00.

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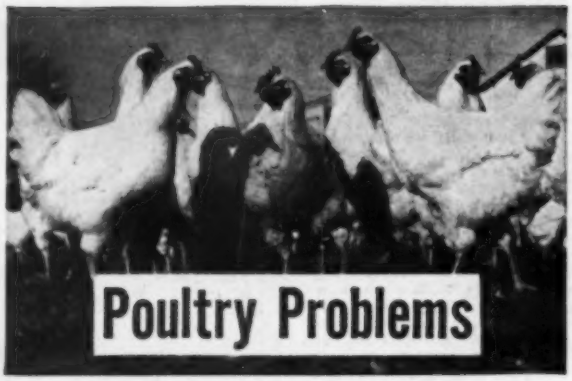

Poultry Problems

Who's To Blame

H. H. ALP

LATELY I have seen a number of statements blaming the farmers for high food prices. This reflects the old technique of "passing the buck." This sort of thing kind of gets your dander up for the truth of the matter is, that current food prices don't reflect profiteering on the part of producers.

Food prices seem high but actually they are not out of line with wages. This point is well illustrated in the following table:

Minutes of Working Time Required by Factory Workers to Earn Enough to Buy One Unit of Various Foods, United States, July 1948 and December 1950

Item and Unit	Minutes Required in: July 1948	Dec. 1950
Flour, wheat—lb.	4.2	3.9
Bread, white—lb.	6.2	5.7
Rice—lb.	9.5	8.9
Meats:		
Chuck roast—lb.	31.3	26.3
Hamburger —lb.	27.3	24.1
Pork chops—lb.	36.9	27.8
Bacon, sliced—lb.	34.5	25.5
Butter—lb.	40.6	29.7
Cheese—lb.	30.2	20.5
Milk, fresh- delivered—qt.	9.5	8.5
Eggs, fresh—doz.	31.3	33.8
Potatoes—lb.	2.6	1.6
Canned corn—No. 2 can	8.7	7.5
Canned peaches—No. 2½ can	13.8	12.6
Sugar—lb.	4.1	3.9
Coffee—lb.	22.8	32.4

Source: Based on data of the Bureau of Labor Statistics, United States Department of Labor.

Price controls are muddying the waters and have indirectly contributed to price increases. The public remembered what happened under OPA. Considerable jockeying was done to get in a favorable position on prices and supplies before the issuing of the price ceiling order.

The inflation kettle is boiling and everyone knows that you cannot fasten down the lid of a boiling kettle without having a blow-off. The sensible thing to do would be to turn down the heat and this, in terms of controlling inflation, means: (1) all-out production, (2) increased taxes, (3) economy in government, (4) elimination of easy credit, and (5) government borrowing money from private or corporation sources rather than banks.

Price Ceiling Regulation

The price ceiling regulations on eggs, poultry, and their products should be removed; in fact, they should never have been imposed because the intent of Congress as set forth in the Defense Production Act was that farm products selling below parity should be exempt from any type of control, direct or indirect, unless and until such time parity level is reached.

The general ceiling price regulation implies that margin control of some commodities is held necessary to prevent "compounding a basic cost increase." In actuality this has not happened with poultry products and is not likely to happen because of an expanded production program, and because of highly intensified competitive buying and selling within the industry.

Price ceilings and controls are unworkable for poultry products because of a short production cycle which makes possible quick adjustments to meet changing supply and demand situations.

Price ceilings and controls, if maintained, will:

(a) sharply curtail production, possibly as much as 15 per cent, which will tend to reduce the available supply of poultry products both for the consumer and the armed services. This curtailed production will result because of the removal of incentive for poultry producers to expand production, and because of confusion and dissatisfaction created amongst marketing and distribution segments of the industry.

(b) Cause unlimited chaotic confusion since poultry and eggs are produced in every community throughout the country under varying conditions with myriad of grades, types, classes, units of products and operations, a situation which could never be effectively policed to make controls workable.

Egg Market Looks Good

All signs are pointing to a strong egg market for the balance of the year, and it would appear to be good judgment to "shoot the works" on care and management of replacement pullet stock. I'd suggest checking carefully all feed and management intentions between now and fall. You might check yourself against the following list:

1. Do you have ample feeder equipment both for the brooder room and range? This should mean at least, for the brooder room, one four-foot feeder to each 100 chicks, and for the range, two outdoor type of feeders (four feet long) per range shelter.

2. An adequate and convenient type of water supply. Beware of trying to water growing pullets out of fruit jars.

3. Do your plans include a clean range, one that will provide a source of natural green feed such as alfalfa and ladino clover? Will it also have shade facilities and protection for the birds against bad storms?

4. Will you have adequate roosting facilities early enough to avoid floor crowding?

5. What are your plans on vaccination and will it be done early enough to avoid costly setbacks?

6. Will you use a free choice grain and mash method of feeding while the birds are on range?

7. Do you intend to make a midsummer check for mites and lice?

A Little Thing

Putting the right end of an egg up in a carton or egg case is a little thing, but nevertheless extremely important. Failure to do this means to the producer a loss of one whole grade, and consequently a drop in price. An egg upside down for 24 to 48 hours is ruined — it will never get into the top grade.

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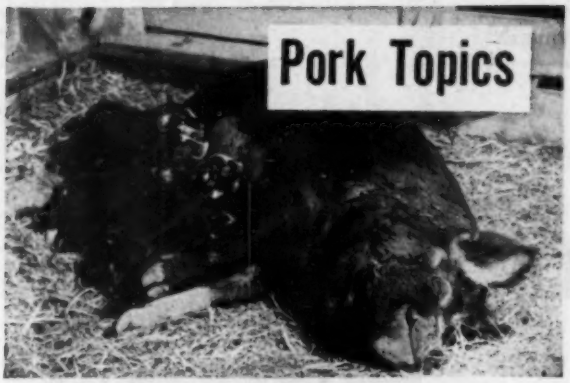

Have You Planned These Things For 1951?

J. J. LACEY

A way of getting the spring pigs to the pasture lots without taking them through infected and infested hog lots? You know a few minutes of carelessness may throw the whole sanitation program out of whack. Pigs that have been farrowed by clean sows in clean pens may, in passing through an old hog lot, pick up enough roundworm eggs to cause serious roundworm trouble a few months later. Trucks, or crates mounted for easy hauling, make good transportation vehicles and the extra cost of such equipment and use of time is more than repaid.

A pasture acreage that will yield enough feed for the spring pigs for at least four months? The exact amount of area will depend upon crops used. One acre of a good mixture of alfalfa and brome, or alfalfa-brome-ladino, may be worth five acres of bluegrass when weather is dry. It should be remembered that an acre of good pasture, with present feed and hog prices, may net from $50 to $100 this year. The use of an abundance of good green feed will reduce grain costs by at least 20 per cent. Besides, hogs on good pasture grow faster, they maintain better physical condition, and they are generally quite free of nutritional troubles. About one acre of green feed per 25 growing pigs is recommended. However, quality and quantity of feed per acre rather than area determines the acre-hog relationship.

A suitable, clean wallow, when weather begins to boil? A few trials have shown that faster gains are made if cool water and plenty of shade are provided during July and August. A wallow does not need to be a mudhole, nor a low spot where all the filth of the feeding floors and hog pens accumulate. Handy portable wallows of wood or metal can be bought or made at little cost. With a drain that permits easy cleaning, such troughs or boxes can be kept sanitary and parasite and disease free. A small shaded area for the wallow is an added feature of comfort when weather is sizzling.

There is some question on the practice of putting drain oil in the wallows to reduce mange infestation and to cut down on evaporation. With a film of oil on the surface the water temperature rises and the purpose of the wallow is defeated. Better use some better method of mange control, and add extra water when wallows get low.

A plentiful supply of clean drinking water? One drink of thin slop every ten or twelve hours isn't enough for a growing pig. The young animal body is high in water and daily needs are greater than average growers consider them to be. Stagnant pools or streams as sources of water for drinking are really hazards in the livestock business. Disease organisms and parasites find a good location in muddy, filthy water holes. A few dollars invested in pipe or rubber hose will pay a big return where fresh water is needed.

The use of a self-feeder to cut labor costs and to save feed? Self-feeding of pigs to be sold for market is no longer an experiment. With short supplies of farm labor, and with need for efficiency in feed usage, self-feeding is a must. Feeders should be used only when these qualifications are met:

1. A two compartment feeder, for grain and supplement, with about five feet of grain space for each one foot of supplement storage.

2. A deep, waste-free feed box, with partitioned feeding spaces for individual pigs. One foot of feeding space for each four pigs to be fed during the summer is needed.

3. Protection against loss of feed by wind or rain and by birds or chickens. Covered feed boxes offer this protection in best form.

4. A feed bin large enough to accommodate a week's supply of grain and supplement. Hog producers operating on large scale build feeders large enough for ten days' or two weeks' supplies. Extra storage means reduced man hours of labor.

5. A clog-free box or storage bin that will insure feed in the feed box without too much attention. Feeders built on the wrong pattern allow the ground feed to "bridge over" and while good supplies are stored, they do not find their way into the feed box. Gains are made on feed consumed, not on feed poured into the feeder.

And, finally, grain of the right kind, and supplements to balance? Corn is still the No. 1 pig feed. Oats, barley, and rye can be used to make up about one-third of the grain ration when ground and mixed with corn. Commercial supplements, or home mixed protein feeds in which some tankage or meat scraps are included, will do a bangup job of balancing the grain part of the ration.

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Junior Dairymen

Start Your Farm Orchard

Fragrance and beauty for your enjoyment, and fresh fruit for your appetite are the rewards for a little time and planning.

FRUIT from your own orchard—these are usually very appealing words. When you hear them you can almost picture yourself reaching up and picking a large, juicy-looking apple, or perhaps a pear or even a peach from your own tree.

There's a lot of work to be done before you can actually enjoy that experience, but it's not too distant a reality if you make up your mind to have an orchard on your farm.

Before we begin discussing the details of starting a farm orchard, we should figure out roughly what size and type of orchard we want. We should decide whether we want just a few trees in one spot or a large area filled with a great variety of fruit trees and shrubs and vines.

We'll leave that up to you—you know better than anyone else how much room you have for an orchard. But there's another thing to consider. You may have room, but is the location and the soil good for an orchard?

Where Should You Plant? . . .

If you want to give the orchard good care and also be on hand when fruit is ready to be picked, it should be placed fairly close to the house. It is important both for convenience and protection to place the orchard within the protected area of the farmstead if possible. It's a good idea to provide an orchard area between the windbreak and the buildings.

Select Sloping Ground . . .

A sloping site, although not absolutely necessary, is desirable. Fruit trees must have well drained soil. A slope provides water drainage and may also give some protection against spring-blossom injury by draining off the cold air. And a southern slope is best.

Wind protection throughout the season is necessary. If the site chosen is not protected by a slope, a dense windbreak should be established before the fruit trees are planted, if that is a possibility.

The Soil . . .

Although fruit trees may be grown on a wide range of soils, a deep loamy clay soil is the most suitable. You can improve the condition of both sandy and clay soils with green manure crops or liberal dressings of barnyard manure or peat plowed under in preparation for orchard planting.

But here we should mention that when you select the site for fruit trees, the type of soil and its fertility is not so important as certain other considerations. Other important things to look for are depth of soil, drainage, and wind protection. You can change the condition of the topsoil rather easily, whereas the other characteristics are difficult to alter.

Size and Planting Arrangement . . .

For the average farm orchard, 10 trees each of apples, plums, and cherries will be ample since the supply of fresh and stored fruit will be supplemented by various small fruits. Here it should be pointed out that, depending on which section of the country you live in, different varieties of fruit trees may be substituted for the above-mentioned ones. But the number of trees you will need is about right. Orchards that are larger than necessary are usually neglected and do not produce efficiently.

Don't Crowd Trees . . .

Crowding trees has been one of the greatest causes of failure of farm orchards in the past. Your trees must have plenty of room if they are to produce good fruit and escape an early death from starvation, drouth, and disease.

Trees receive their energy for growth and the production of fruit from the sun. They must be spaced so that a large amount of leaf area is exposed to sunlight.

Apple trees should be placed about 30 feet apart, pear trees 25 to 30 feet apart, and plums about 20 feet apart. This will serve as a gauge, and you can figure the proper distances for other types of fruit trees according to their sizes.

Buy Dependable Stock . . .

Regardless of the variety of trees you wish to grow, it will pay you to buy good stock. Stock offered at bargain prices is often of the wrong variety, improperly propagated, low in vigor, or otherwise inferior. Since no amount of cultural skill can remedy a wrong start, examine "bargain" stock critically and purchase only if it is of good quality and from a dependable source.

Size of Stock . . .

Most nurserymen offer 2 and 3-year-old trees which are somewhat branched. Apple, plum, and pear trees of this age may be from 4 to 6 feet in height and cherry-plums, 2 to 4 feet.

Smaller and unbranched "whip" trees, when available, are less expensive and may be satisfactory if properly cared for the first year. The main consideration in selecting the planting stock, however, is not so much the size as the condition of the trees. They should be vigorous and healthy with well developed root systems.

Get the Soil Ready . . .

If you plan to plant early this spring, the soil should be put in good condition before planting. Don't plant trees in newly plowed sod. Drouth and grubworm injury are apt to occur unless the sod is allowed to rot thoroughly. Also, the ground should be disked and harrowed thoroughly before planting.

If you want to replace trees in a sodded orchard, thoroughly prepare the soil in a 6-foot circle where the tree is to be set and keep free from weeds and grass for three or four years after the tree is planted.

Set the Trees Properly . . .

The roots of the young trees should be kept cool and moist until you plant them—don't let them dry out.

When you plant the trees, make a hole large enough so that you don't have to crowd the roots in. Also, the hole should be dug deeply enough so that when the tree is planted, it will be set in about one inch deeper than it was in the nursery. Fill the hole with topsoil first, shaking the tree up and down after each two or three shovelfuls to settle the soil around the roots. Tramp the soil with the feet occasionally as the hole is filled. Leave the top two inches of dirt loose to act as a mulch to catch rain. If the soil is dry at planting, pour a pail of water into the basin.

It's not good practice to put fresh manure or commercial fertilizer in the hole at the time of planting. Manure or other fertilizers coming into direct contact with the roots are apt to injure or kill the tree. If the soil is very light, a small amount of well rotted manure or peat may be mixed into the soil with which the hole is filled.

Planning a Garden Project?

If you are planning for a garden project this spring, here are some good points to remember:

Find a garden spot . . . with GOOD SOIL
. . . that's HANDY
. . . that's SUNNY
. . . away from TREES
. . . on the LEVEL.

Foots, Mouses, Geeses

Do you have trouble with your English lessons in school? Or if you're out of school, do you still have trouble? We sympathize with you, because we do, too.

Did you ever stop to think of how the rules of grammar we learn in our schools conflict, or differ? For example, "mice" is the plural of "mouse," so why isn't "hice" the plural of "house?"

Or since "geese" is the plural of "goose," why isn't "meese" the plural of "moose?" Though we must write "oxen, children, brethren" — we can't follow through with "sheepen, goaten, elken, deeren, dogen, catten, horsen and cowen," can we?

"A retired railroad engineer lives on this farm."

Slick Up Your Farm

NOT all farms in the United States are "show places," and not all farmers care to have them be such. But there is a lot of enjoyment in having a farm with neat lawns and a few shrubs around the house and other buildings to help the appearance.

The purpose of this article is to point out a few things that can be done to make the farm a more beautiful and more enjoyable place to live—without laying out a lot of cash for fancy landscaping.

THE HOME . . .

Let's consider the house first. Above is a picture of a farm house which was once a very homely and un-inviting looking spot to live. Below the front porch was a two-foot gap of open space where the dogs and cats lounged during warm summer days. The dogs also had a habit of carrying under the porch everything from bones to ball bats. That didn't help the appearance of the place either.

The place had one advantage. It had two large pine trees in the front yard which partially camouflaged the bad looks of the house and gave the front lawn — such as it was — a better appearance. But beyond that there was little to add to beauty.

A little work and a few dollars' worth of evergreens changed the whole appearance. The pickup truck on the farm was used for hauling in dirt for leveling the lawn and bringing it up to within a foot of the bottom of the porch. That made the tall house look as though it was sitting solidly on the ground and not perched up in the air.

The remaining foot of blank space between the bottom of the porch and the ground was filled in with old brick that came from a fallen down building. The brick didn't have to be pretty — just something to fill in the space. The evergreens did the rest.

A few pfitzer junipers, a mugho pine, and a couple of taller spruce to put at the corners were purchased and planted. The picture shows the results. The house was given a coat of paint, too, as it hadn't been painted for years. That helped immensely.

It's not a new home, and it's not of the most modern type, but it's neat, clean, and well landscaped. The people who live there and care for the lawn as a regular part of their summer chores, enjoy the rambling old house.

THE BARN . . .

The barn didn't add to the beauty of the place either. At one end was heaped a large pile of discarded lumber. It had been "saved" for years with the thought that some day it might be needed and would come in handy. But it never was used. It wasn't good enough to be used for building, so finally it was sawed up for kindling and put in the basement. Other rubbish around the barn was picked up and hauled away.

It was amazing to see the amount of discarded baling wire, old auto tires, tin cans, oil filter cartridges from the tractor, and other junk that had accumulated. It's easy to throw on "just one more tin can" when a pile is once started, it seems. But the job of throwing all the rubbish in the pick-up truck and hauling it away wasn't a great hardship, either.

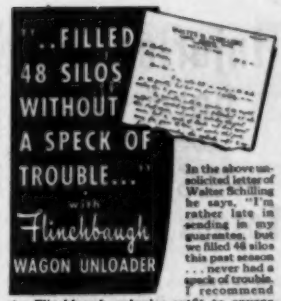
After the junk was cleaned up a drag, built of two old railroad ties, was hooked to the tractor and a few runs were made around the barn to level the dirt and gravel. No evergreens were planted but a couple of flower bushes from the garden were put in to hide the grease-stained cement foundation and to give a brighter look to the barn.

One of the big problems around the barn was not one of merely bad looks but one of mud in the spring which meant both bad looks, and muddy teats to be washed before milking. It seemed that the cows kept clean until just before they came into the barn. There was about a 20-foot strip of mud where the rain ran off the roof, and that's what caused all the trouble. The situation was remedied by constructing a strip of concrete about 20 feet long next to the barn. The strip was made only about 10 feet wide, as it would have cost too much to cement more of the yard and that strip was all that was necessary to keep the cows out of the mud in the spring.

FENCES . . .

Another eyesore around the barn was an old ragged looking fence. The fence surrounded more ground for the cow lot than was really necessary. It was crowding close to other buildings and ruining the looks of the entire farmstead for anyone that drove into the driveway. The fence was torn out and moved over several yards so that the barn hid it from view to anyone coming in from the road. This made the cow lot smaller, but it gave more room to the center of the farmyard for moving machinery. The strip that was opened up for this use by moving the fence was plowed, harrowed, and seeded to grass. Now the farmyard has a much neater appearance.

Many other little jobs were done around the farm which required nothing but a little work — no outlay of cash. Trees were trimmed, some wild plums were pulled out with a tractor, and the surrounding old orchard and windbreak were generally "slicked up." None of the work done ruined any of the practical value of either the orchard, or the windbreak, or the lawn surrounding the buildings— but it did help the looks of the place a lot.



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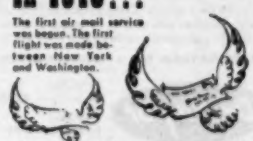

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HOARD'S DAIRYMAN Fort Atkinson, Wis.

Our 14 Years with Grass Silage

(Continued from page 379)

It looks good—cows like it!

your silo leaks much, the silage is too wet; if it isn't almost ready to leak, it may be too dry. The main thing is to seal out the air. The lower part of the silo may be filled with too-dry material if there is plenty of weight on top of it. The best way is to put several loads of green, heavy material on top of the silo, adding water at the blower if necessary. It might be well to add here that a stiff-stemmed grass like timothy is not as good as brome for silage, and including in the mixture a clover of the nature of alsike or ladino seems to result in better silage.

In the fourteen years that we have been making grass silage we have used blackstrap molasses, corn syrup, sugar, and ground corn as preservatives. The ground corn was first used when the price of molasses got high and we liked it so well that we have never gone back to molasses. Some of our neighbors have used dried molasses, dried whey, and other high carbohydrate feeds, all with good success. Some never use any preservative, but either wilt the hay or allow it to get so ripe that it approaches the correct moisture content of 60 to 65% as it stands in the field. All of these methods have been quite successful when properly carried out.

Corn Good Preservative

Once, when we had to wait too long for a custom filler, we even had to add water to hay ensiled immediately after cutting. But for the reasons just given we like to cut the hay in an early stage, and in areas where corn is available, corn makes an ideal preservative. (It is a lot easier to blow up into the silo than molasses in any form except pellets.) It must be remembered that grass silage is normally lower in total digestible nutrients than corn silage, and the addition of 200 pounds of ground ear corn per ton helps to make up for that deficiency, while giving adequate insurance of good preserving action.

Depends on Strength of Acid

Unfortunately, no precise formula for the amount of preservative can be given. The fundamental principles are the same as in curing meat in brine: a certain strength of brine is necessary. This depends on two things — the amount of water and the amount of salt. Likewise, in preserving silage a certain strength of acid is necessary; this depends on two things—the amount of water and the amount of acid or carbohydrates which produce acid through bacterial action. Since it is definitely known that the sugars contained in the hay itself will usually do a good job of preserving if the moisture content is not above 65%, if 50 pounds of molasses is needed to preserve silage containing 70% water, the molasses is used for that 5% of water above 65%.

More Moisture—More Preservative

Hay going into the silo at 75% moisture contains twice as much water above that 65% mark, and therefore would require 100 pounds of molasses. While this is only theoretical, our experience has been that a great deal more preservative is necessary as the moisture content of the hay increases. Your independence of the weather depends largely on knowing how to make good silage even though the sun will not cooperate by drying the hay to an ideal degree. We can't quite conceive of a group of seven men sitting around while the corn needs cultivating, waiting for the hay to dry out to 70% moisture so they can follow a formula for putting it into the silo.

Legumes Need More Preservative

A good guess as to the amounts of preservative to use for a grass-legume mixture would be 150 to 200 pounds of ground ear corn, or 60 pounds of molasses, varying the amounts according to the principles outlined above. Pure legumes would take more—pure grasses less or none at all.

We cut the hay with a mower with a steel finger windrower attached to the cutter bar. This is important. Cutting the hay and then raking it not only requires an extra operation, but the rake may pick up rocks or hardware and ruin a $35 set of knives in the field chopper. The chopped material is brought in to the silo in dump wagons or trucks, or in our 8 by 16-foot wagons equipped with a canvas apron to facilitate unloading. A wagonload of ground corn sits alongside the load of silage as it is in position at the blower, and one man shovels about 20 or 25 shovelfuls of ground corn on the load as another begins feeding it into the blower. This arrangement saves time, which is important, since it takes 60 or 70 two-ton loads of silage to fill our 14 by 47-foot silo. It is important to distribute the corn evenly on the silage, because there seems to be very little movement of juices and acids inside the silo.

Use Your Own System

Generally speaking, no particular set of equipment can be recommended for the job. So many different systems have been used successfully that the best advice is to use the cutting and unloading system you like and make it work. Under our conditions it seems that the finer the material is cut the better the silage. However, very short cuts take more time and power than medium lengths; a good compromise seems to be the ¾-inch cut. It is important that the knives of the field chopper be sharp and set very close to a sharp shear plate if this length is to be satisfactory.

Superior to Corn Silage

A logical question is, "What are the results of a longtime program of making and feeding grass silage?" The answer is simple: we find that this grass silage made of prime pasture, with about 200 lbs. ground ear corn added as a preservative and "kicker," is superior in every respect to corn silage.

Our calves begin to eat it at six weeks of age and develop into strong, healthy cows that will consume from 30 to 60 pounds of grass silage a day, besides some 15 pounds of hay.

The bull gets about 50 lbs. silage and is insulted if he gets his hay first and has to wait for his silage.

The cows are fed all the silage they will clean up twice a day and all the hay they want thereafter. When the silage and hay are both as good as they should be, the dry cows and long yearlings receive no grain except what is in the silage. One cow that was fed this "no extra grain" ration during her dry period this winter has recently freshened and has produced more than 100 lbs. fat per month for the two months she has been milking.

Herd Averages 443 lbs. Fat

Our Farm Bureau Farm Management records, which have been completely analyzed for the years 1946, '47, '48, '49, show a herd average of 443 lbs. fat per cow per year, figured from the milk actually sold and used. These same records show that our herd returned $248 per $100 of feed, which is 138.5% of average, and also that the herd made 100 lbs. milk on 200 lbs. of concentrates (including the corn that was put into the silage) against 285 lbs. of concentrates required by the average herd in the management service.

These four-year averages should be a significant proof of the value of grass silage. Perhaps the most significant, however, is the record of our older cows. Seven of our 21 cows are past six years of age, averaging eight years old. As proof that this high level of production doesn't burn out the cows, these old cows produced an average of 578 lbs. fat apiece in their last 305-day lactations. A little reflection will bring out the importance of keeping these old cows healthy and producing, which is greatly helped by that vitamin-and-mineral packed grass silage.

Comparison of Costs

A comparison of the relative costs of corn silage and grass silage will help understand these figures. It ordinarily requires about 12 acres of 70-bushel corn to fill our silo with 120 tons of corn silage. At current prices that figures out about $11 per

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SQUIBB —A NAME YOU CAN TRUST

ton. (It is not unusual to have 1,000 bushels of corn in such a silo.) Twenty acres of alfalfa-brome-ladino mixture will fill the same silo with, perhaps, 140 tons of silage, which, at a cost of $20 per acre for the standing hay, is only $3 per ton. The addition of 400 bushels of corn as a preservative brings the cost of the silage to only $7.50 per ton.

When you consider that our greatest erosion problem is those fields which are laid bare in the fall by the complete removal of the corn crop, and lie naked to the ravages of the rain and sun and melting snow all winter, while the field from which grass silage has been made lies snug under a blanket of sod, with its soil full of Nature's greatest conditioner, the grass roots, then you begin to realize the tremendous cost to the soil of producing corn silage.

Saves on Protein Supplements

Perhaps the greatest saving, on a percentage basis, is in protein supplement. For an 11% digestible protein grain mixture is fully adequate, even for high producing cows, with good hay and grass-legume silage.

Furthermore, making grass silage out of that hard-to-cure first cutting of hay enables you to use more grass in the farm plan, so that more is available for the choice second-cutting hay and for pasture later on in the season when good pasture is at a premium. This, of course, means greater yields of grain on the land in corn and small grain. Since grass silage is cheaper and better than corn silage, since it will sustain high production, good health, and long life of the cows, and since it makes for better soil treatment and a better hay and pasture program, our conclusion is that it is a "must" for the balanced dairy farm plan.

The Story of Hybrid Corn

(Continued from page 392)

mercial corn grower. The rate of increase is relatively rapid but all stages must be kept going to finally produce the seed for the commercial corn grower.

Growing the Hybrid Seed

After the single-crosses are produced, they are released to seed corn growers who order sufficient seed to plant a given acreage. This seed is valuable and high priced and may be sold to the grower at so much per 1,000 seeds. Again the most productive single-cross is designated as the female from which double-crossed hybrid seed is to be harvested.

The bulk of the acreage—at least 80%—will be planted to this single-cross and the remainder to the single-cross which is to be left with tassels and designated as male. Usually a pattern such as four rows of female to one row of male is considered sufficient for the best pollination. As the tassels start to emerge on the female, they are pulled out from time to time before they start to shed pollen.

Most states have inspectors who periodically inspect such seed fields to see that detasseling is being done on time and properly. If not done right, the field is condemned for seed and its sale is not allowed. It is these fields which are becoming more apparent each year and which are frequently seen from the road. Machines have been devised on which the detasselers ride above the corn and pull the tassels as they go by.

Harvesting and Grading

Once the hybrid seed is ripe, it is harvested and a general practice today is to dry the seed in bins through which hot air is forced at temperatures high enough to speed up drying and prevent spoilage but not hot enough to damage germination. When the corn is dried down to 14% moisture, it is shelled and graded as to size and kernel shape. Such grading insures proper planting for commercial corn.

Choosing a Hybrid

With the large number of hybrids available today, most farmers need considerable help in hybrid selection. Most state experiment stations run trials of most hybrids adapted for use within the state and make available to county agricultural agents and farmers such information. By following the results of the hybrid trials in your state, selection is much more sure. A hybrid which will be mature at the time of the first killing frost is generally the most productive. Later hybrids may be used for silage purposes.

In any case, before trying a new hybrid consult the people who run variety trials in your state. They are in a position to help in choosing an adapted, productive hybrid for your area.

If a man worked 40 hours a week, 50 weeks a year at $2.50 per hour, it would take him 200,000 years to earn one billion dollars.—EDWARD E. HALE.

The Dairyman's Dilemma

(Continued from page 377)

to cover mangers, drinking cups, and milking equipment before you spray.

And keep on the job of sanitation. Forget that, and you don't have fly control.

Lindane, OK'ed for application on dairy barn walls even though not on the cows, does its best work at high temperatures. So, when the daytime temperature gets up to 90° F. and above, it's time to switch to lindane for barn spraying. You can't expect it to last as long as DDT or methoxychlor used during low temperatures because lindane also evaporates rapidly at high temperatures. You'll need to re-treat barn walls with lindane every 3 to 5 weeks in hot weather. You can figure on two or three treatments. Then hot weather is usually over and you can go back to methoxychlor for fall application.

That sounds fine and the program works, too, except for one point. Some day in July that placid herd of yours, fly-free until now, goes crazy from attacks of stable flies and horse flies. That's the signal to stop using methoxychlor on the cows.

We know from the habits of these two pests that they hit and run. So we can't expect a slow-acting residual like methoxychlor to kill them.

Pyrethins Repel Flies

Our only hope is to repel these flies. In other words, apply sprays to the cattle which keep the flies from landing. Iowa tests show that various formulations of synergized pyrethrins will repel flies, even hungry ones, for 24 hours. You'll have to apply these materials every day, preferably after the morning milking. They keep flies off the cattle and allow them to graze without annoyance. These repellers do not affect the cattle in any way if used as water emulsions. Oil base sprays should be used as a mist, not as a wet spray.

Oil sprays containing thioscyanates may be used to free the air in the barn of flies, but should be used very cautiously, if at all on cattle. If you use the lindane-repellent combination, you shouldn't have to use space sprays in the barn.

Is all of this work — hauling manure, keeping the place clean, spraying with different chemicals, watching the temperature — worthwhile? YES!

First of all, you as a dairyman love cattle or you wouldn't be in the business. Any dairyman hates to see his herd pestered by flies and welcomes anything that will give them relief from annoyance.

Second, tests in Iowa with paired dairy herds of all breeds have shown that fly control results in an average production of 3.33 more pounds of milk per day per cow in sprayed herds than in unsprayed herds. In a 60-day fly period, that's 200 pounds of extra milk per cow — and all your work doesn't cost you near that much. In our tests, the cost of spraying per cow, was 12 cents. Double that for inflation, double it again for work and worry, and it still is less than $1.00 per cow — and you get $8.00 back. **Fly control pays!**

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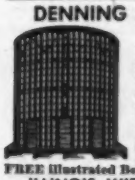

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FOR Sale—100 head open and bred Holstein and Guernsey heifers. Can furnish springer cows and heifers and small calves. Write or phone C. A. PAULSON AND SON, Neillsville, Wisconsin. 10-*

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WANTED—Woman cook, 25 to 40 years old, private home. Private room. Have second maid. Write MRS. LOUIS HOBBINS, 1900 Sherman Avenue, Madison, Wis., for interview. 8-2

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EXPERIENCED dairyman for top Holstein herd —Chicago territory—outline experience, marital status and list telephone number. BOX 688, care Hoard's Dairyman, Fort Atkinson, Wisconsin. 7-*

WANTED—Woman attendant; also relief cook; steady or part time; good salary; regular hours; vacation with pay; will train on job; room and board furnished. WALWORTH COUNTY HOSPITAL AND HOME, Elkhorn, Wisconsin.

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VERMONT Grade "A" Maple Syrup. Direct from producer. Attractive lithographed cans. Half gallons $3.25. Quarts $2.00. F. O. B. Insured. FABIAN C. LITTLE, Williamstown, Vermont. 9-2

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Literature From Breed Offices

What the dairy breed associations have to offer in brochures, booklets, and films.

WE RECEIVE many requests for general information on the various dairy breeds. Apparently, few people realize the volume of published material that is available to dairymen through the five dairy breed organizations.

In response to our request for a list of publications available for distribution, the five dairy breed associations provided us with the following lists:

FROM THE AYRSHIRE BREEDERS

For the publications listed below write directly to the Ayrshire Breeders' Association, Brandon, Vermont:

The Ayrshire Breed of Dairy Cattle—A 16-page, pictorial, and informative booklet that tells the story of the Ayrshire and her merits.

Why the Ayrshire is the Cow for Your Farm—A colored folder that lists the numerous characteristics of the Ayrshire.

Know Your Ayrshire Udders—A page devoted to the study of photographs of Ayrshire udders. Ideal for use in judging work.

Increase Your Profits With An Ayrshire Bull—A 4-page, colored leaflet introducing the Ayrshire sire as the herd improver.

Know the Ayrshire Breed — A handsome 16½" by 21½" poster, in color, of four Ayrshires whose noteworthy achievements have made them particularly outstanding individuals of the breed.

Set of Six Ayrshire Lessons—Contain information and photographs of the breed. Especially recommended for high school and college students, these Ayrshire lessons are punched for loose leaf notebooks.

Approved Milk Literature including the **Approved Ayrshire Milk Sales Program**—Colored pamphlets, folders, and booklets describing Approved Ayrshire milk and its characteristics.

Type Classification Rules—A publication that describes the Ayrshire Breeders' Association's type classification program.

The Ayrshire Digest—The official breed publication of the Ayrshire Breeders' Association, published on the 15th of each month. Subscription rates: 1 year, $3.00; 2 years, $5.50.

"BROWN SWISS, THE FARMER'S COW"

For publications of the Brown Swiss Cattle Breeders' Association, address the Secretary, The Brown Swiss Cattle Breeders' Association, Beloit, Wisconsin.

Brown Swiss, the Farmer's Cow—A booklet extolling the merits and advantages of Brown Swiss cattle.

Four-Page Folders—A variety of promotion pieces on high producing Brown Swiss cows which have been exhibited at the Dairy Cattle Congress. Includes Royal's Aster of Lee's Hill, Royal's Rapture of Lee's Hill, and Clepe's Best M. B.

The Brown Swiss Bulletin — 1 year, $1.50; 2 years, $2.00; 5 years, $5.00.

Photographs—Pictures of top cows of the breed.

GUERNSEY BOOKLET AND FILMS

Requests for the following publications and films should be directed to The American Guernsey Cattle Club, Peterborough, N. H.

Own Guernseys in 1951—16-page booklet, free.

Creating a Standard of Excellence—56-page publication, 50 cents per copy.

Where to Buy Guernseys—free.

ABC's of Registering Guernsey Cattle — free.

Folders About Golden Guernsey Milk — free.

Cost of a One-Day Test — free.

Rules and Regulations for Type Classification — free.

Performance Register — $10.00.

Showing and Judging Procedures—free.

The Guernsey — a book by Wm. H. Caldwell, $2.75.

Heredity in Dairy Cattle — a book by James E. Russell, $2.50.

Guernsey Breeders' Journal — 1 year, $2.00

FILM — Man Made Miracles — a 16-mm, color, sound film, 29 minutes duration.

FILM — Judging —a 35-mm. strip film, in color, and available for free showings.

THE HOLSTEIN STORY

The following publications should be ordered direct from The Holstein-Friesian Association of America, Brattleboro, Vermont.

The Holstein Story—a high quality booklet, tracing the development of the Holstein breed in the United States. Illustrated in full color; 50 cents per copy.

The Holstein Handbook—A book of facts pertinent to the Holstein breed and other purebred dairy cattle. An educational publication, with space devoted to such subjects as analysis of type, planning a breeding program, and so forth. 25 cents per copy.

The Judging Manual—A 32-page, illustrated piece devoted to the judging of Holstein-Friesian dairy animals. Free.

Holsteins for Better Living. — A composite of several success stories of individuals who have built better living for themselves and their families through Holstein cows. Well illustrated. Free.

Holstein-Friesian World —1 year, $2.00. Address: Lacona, New York.

JERSEY PUBLICATIONS

The following material may be obtained directly from The American Jersey Cattle Club, Columbus, Ohio:

Jersey Judging Made Easy—An illustrated booklet on judging for type, and hints on selecting animals for the dairy herd.

Going Places with Jerseys — The opportunities and privileges of junior membership in The American Jersey Cattle Club.

Jersey Milk—A color folder, describing advantages of Jersey milk.

Jersey Herd Classification — A booklet describing the importance of herd classification and how animals are scored.

Selective and Qualified Registration of Jersey Bulls— A leaflet that distinguishes between the two kinds of Jersey male registrations.

Jersey Billfold Card — A small card that lists the Jersey breed's production champions and their respective milk and butterfat records.

Promote Jerseys — A folder that lists and describes the various items available to Jersey breeders for their advertising programs.

The Jersey Bulletin—1 year, $2.00; 2 years, $3.00. Address 1142 North Meridian Street, Indianapolis 4, Ind.

FROM ALL THE BREEDS

In addition to the foregoing publications, the five national dairy breed organizations joined together to make up the Purebred Dairy Cattle Association. This group has been responsible for the preparation of certain publications which may be of exceptional value to many dairymen and educators.

The following publications should be requested through Fred S. Idtse Secretary, The Purebred Dairy Cattle Association, Beloit, Wisconsin:

Unified Rules for Official Testing.

Rules and Regulations Governing Artificial Insemination of Purebred Dairy Cattle.

Classes and Order of Judging, One and Two Day Shows.

The Purebred Booklet, Purebred Dairy Cattle and the Farm Family—An excellent, well written publication on the advantages of registered dairy cattle.

The Purebred Dairy Cattle Association has also prepared a unified dairy score card for cows and bulls, with evaluation of defects. These score cards may be obtained from the respective state colleges of agriculture.

Waukesha Spring Swiss Sale

The fourth annual Waukesha Spring Sale of Brown Swiss was held April 2 at Waukesha, Wis., under the management of Norman E. Magnussen. It was a very successful sale with an excellent crowd in attendance, a crowd which included Brown Swiss enthusiasts from 18 different states.

A total of 61 animals consigned by breeders from many states sold to 37 buyers from nine states for an average of $639.42. This figure is the all-time high average for a spring consignment sale of Brown Swiss. The 27 cows sold averaged $754.00; 13 bred heifers averaged $516.16; 13 open heifers averaged $359.61; 8 bulls averaged $910.50.

Lee's Hill Gracious Keeper, a very typy young bull consigned by Lee's Hill Farms of New Jersey, topped the sale at $1,500. He was purchased by G. N. Slade of Minnesota for his Fenlea Farm Herd. The very first animal in the sale, Ruthella Gail, consigned by Ati and Irene Morgan of Indiana, was the highest priced female at $1,475. She was purchased by Engle Acres of Wisconsin. Willona Farm of Indiana was the largest buyer, dollarwise, taking three head for $3,175. Samuel P. Suydan of Wisconsin purchased five animals for a total of $3,000, and W. A. Erasmus of Wisconsin also purchased five animals. The total price for his five was $2,390.

Fromm, Swartz, and Troyer did the selling with sale manager, Magnussen, making the announcements from the box.

Jimmy—"Hi, Tommy! Are you coming out to play?"

Tommy—"No. I have to help my father with my homework."

Wage Bonus for Farm Help

If you're wondering how to get good farm help and keep it, maybe the answer to your problem is a wage-bonus agreement.

J. B. Cunningham, farm management specialist in the Illinois College of Agriculture, says it's only natural for top men to work on farms where their skills and know-how are rewarded best.

He points out that the hired man should receive the going wage in your community, plus a bonus on production or gross income from one or more main products. The bonus should be based on the size and type of farm, ability of the hired man, length of tenure, and so on. Several payments during the year are better than one payment. The agreement should be simple and in writing.

Here are some bonuses suggested by Cunningham:

1. Three to six per cent of the milk checks payable monthly or when checks come in.
2. Fifty cents to $1.00 per 100 pounds of milk sold above an agreed amount of annual production per cow, say 5,000 to 7,000 pounds.
3. Fifty cents to $1.00 per 100 pounds of pork or beef produced during the year.
4. Fifty cents to $1.00 for each pig weaned.
5. Five to 10 cents a dozen for eggs sold over 12 dozen (or some other standard) per hen each year. Or 5 to 10 per cent of egg sales.
6. Two to five cents per bushel of grain produced.

There are many other possible types of bonuses. But above all, the hired man should have a good, comfortable, pleasant place to live. Cunningham says no plan will work well unless he and his family are reasonably happy and content with their living arrangements.

Sale Announcements

May 12—Jerseys. Biltmore Farms Jersey Sale at Biltmore Farms, Biltmore, N. C.

May 17—Guernseys. Mid-West Guernsey Sale at St. Charles, Ill. Gavin McKerrow, Co-ordinator, Pewaukee, Wis.

May 19— Guernseys. Sunnyfield Guernsey Farm Dispersal, at Vergennes, Ill. Illinois Guernsey Breeders Association, Sale Manager, Batavia, Ill.

May 21—Brown Swiss. Complete dispersal, Dr. Ovitz's Recreation Farm, Brown Swiss, at Sycamore, Illinois. Norman E. Magnussen, Sales Manager, Lake Mills, Wisconsin.

May 24—Guernseys. 26th Guernsey Sale at Trenton, New Jersey. Louis McL. Merryman & Sons, Sale Managers, Sparks, Maryland.

May 26—Guernseys. 3rd McDonald Sale at Cortland, New York. Louis McL. Merryman & Sons, Sale Managers, Sparks, Maryland.

June 2—Holstein. Conner's Prairie Holstein Dispersal at Noblesville, Indiana. A. W. Petersen, Sale Manager, Ocopomowoc, Wis.

June 7, 1951—Holsteins. National Convention Sale at Des Moines, Iowa. Baird & Darcey, Sale Managers, Waukesha and Watertown, Wisconsin.

June 9—Guernseys—9th Dairyland Sale at Waukesha, Wis. Phillips Sales & Pedigree Service, Sale Managers, Waukesha, Wis.

June 13—Guernseys. Complete dispersal Fritzlyn Farm Guernseys, at Pipersville, Pa. Louis McL. Merryman & Sons, Sale Managers, Sparks, Md.

Nov. 5—Holsteins. U. S. National Blue Ribbon Sale, Waukesha, Wis. Baird & Darcey, Waukesha, Sales Managers.

Nov. 6—Holsteins. U. S. National Blue Ribbon Sale, Watertown, Wis. Baird & Darcey, Waukesha, Sales Managers.

MILK RECORD SHEETS

Postage Paid — Price of a Year's Supply

Monthly Records—Two Milkings
10 cows, one month $1.25
25 cows, one month 1.75
35 cows, one month 2.00

Weekly Records—Two Milkings
10 cows, one week 2.50
20 cows, one week 3.00
30 cows, one week 3.50

For Three Milkings a Day
15 cows, one month 1.50

HOARD'S DAIRYMAN Fort Atkinson, Wis.

RED POLL CATTLE

Always Red - hornless, Antherities use, Dual purpose type in trued form. Fine yr. avg. 40 meters cows reported 900.4 ft. F.F. Steers choice for beef. Illustrated booklet & breeders directory free. Subscribe breed magazine, Red Poll NEWS, $1 per yr., $2.50 for 3 yrs. Write Dept. HD

RED POLL CATTLE CLUB OF AMERICA
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MAKE MORE PROFITS UNDER AVERAGE FARM CONDITIONS —RAISE MILKING SHORTHORNS

For the average farmer, Milking Shorthorns are unbeatable. Produce 4% milk. Have greater carcass value than other breeds. Second to none in producing milk and meat from home-grown roughage and grain from your farm! Free facts. Or subscribe to Milking Shorthorn Journal. Six months, $1.00; $2.00 per year; 3 years, $5.00. AMERICAN MILKING SHORTHORN SOCIETY • Dept. C-5 313 S. GLENSTONE AVE., SPRINGFIELD 4, MO.

GUERNSEYS

New Guernsey Book FREE

Send for new 20-page, "Own Guernseys in 1951" — detailed information on bettering your income with Guernsey cattle and premium-priced GOLDEN GUERNSEY Milk. Don't delay — it's FREE!

THE AMERICAN GUERNSEY CATTLE CLUB
102 Main St., Peterborough, N. H.

IDEAL FARMS PUREBRED GUERNSEYS

Why not be the proud owner of your own herd sire? We have many out of 700, 800, or 900 lb. dams. Breeding stock you are looking for. State your wants, better yet, come and see for yourself. The World's Greatest Production Herd. Prices reasonable.

IDEAL GUERNSEY FARMS
AUGUSTA NEW JERSEY

1904-FRITZLYN FARMS-1951

FOR SALE sons of Antietam Gypsy King, sire of Fritzlyn King's Jeanette, M. 19,300, F. 867, Jr. 4-on retest to 86 days M. 6,382, F. 300. Fritzlyn Gypsy King's Jeanette, milking from 70 to 81 lbs. per day. 33 A.R. daughters and sons, many over 700 fat. All sons out of A.R. cows with records up to 703 fat. REASONABLE PRICES.

FRITZLYN FARMS Pipersville, Pa.

FOR SALE

TARBELL ROMULUS LOTHARIO, born July 1950. Sired by Coldspring's Romulus Anchor 15 AR daughters, son of Langwater Romulus and Coldspring's Valor's Katina 780# fat Sr3. Dam made 10,311—500 Jr2 305C 2x, 15,650—708 Sr4 365C. An attractive individual. Also a few well bred heifers.

TARBELL GUERNSEY FARMS
Smithville Flats New York

FOREMOST GUERNSEYS

FOREMOST IN NAME and BREEDING FAME

Head your herd with a Foremost bull that is backed by generations of the breed's best bloodlines—a bull that is linebred for both type and high production. We always have for sale some very desirable young bulls. Write us or better still come to the farm before you buy your next herd sire.

FOREMOST GUERNSEY ASSOCIATION, INC.
Hopewell Jct. (Duchess County), New York
J. C. Penney, Pres. W. K. Hepburn, Mgr.

FOR SALE Grandsons of Langwater King of the Meads and Langwater County Squire and out of Bournedale Rex and Langwater Africander bred dams.

TOM COOPER FARM Ardmore, Okla.

WISCONSIN GUERNSEYS

Come to Wisconsin for your purebred Guernseys. We know most of the breeders in America's Dairyland and will give you honest and intelligent guidance in your selections. Good purebreds pay.

WISCONSIN GUERNSEY BREEDERS' ASS'N.
Waukesha, Box 14, Wis. Otto C. Kline, Secretary

QUALITY GUERNSEYS

Registered and Grade Females of All Ages and Registered Bulls

Come direct to breeders to buy. Several hundred herds to select from. Fieldman will assist you. TB and Bang's tested. Official Calfhood Vaccination Program in this County.

WAUKESHA COUNTY GUERNSEY BREEDERS' ASSOCIATION, Box 14, Waukesha, Wis.

Young Bulls For Sale

Backed by type breeding and records. We are offering for sale sons of our herd sires, Meadow Lodge King's Duke and R. Lane's Proud King. Sires' dams have records from 614 to 926 fat. Also some choice heifers. Write today for full information.

R. LANE FARMS, BASSETT, WISCONSIN
J. H. Ruotsman, Owner Louis M. Meyer, Manager

GOOD GUERNSEYS FOR SALE

Barron County is a choice field to find those production bred cows and heifers in the Guernsey breed. Thirteen full time testing associations operating within the county. Buyers assisted by Guides and Sales Service. Let us fill your order.

BARRON COUNTY
GUERNSEY BREEDERS ASSOCIATION
BOX 474, BARRON, WISCONSIN

HERD SIRE PROSPECTS

Sired by McDonald Farms King's Dairyman (sire, Myhaven King and out of McDonald Farms Daffodil, 602 lbs. butterfat GG); also, Woodacres Royal Dairyman (sire, Douglaston Prince Royal and out of Rockingham Recollect, 627 lbs. butterfat Jr. three-year-old). These youngsters are out of cows with good type and production. Priced to sell. Write now for sales list and information.

HOARD'S DAIRYMAN FARM
Fort Atkinson, Wisconsin

BETTER GUERNSEYS

Purebred and grades with outstanding production and type. Purebred bulls that will increase the value of your herds. T.B. and Bang's tested. Service to buyers is free. JEFFERSON CO. GUERNSEY BREEDERS' ASSN., Fort Atkinson, Wis.

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Pure breds and grades. Foundation animals and outstanding individuals for both breeding and show my specialty. MID-WEST SALES SERVICE, Louis Seitz, 11133 W. Bluemound Rd., Wauwatosa 13, Wisconsin.

PROOF OF QUALITY!!
Rich in Green Meadow and Levity Blood
Our large number of repeat sales
Our championships at many shows
Fifteen years of continuous testing and selecting.

(We now have very select serviceable and younger bulls available.)

BRANDTJEN FARMS, Farmington, Minnesota

FINE YOUNG BULLS

also some bred cows available at fair prices. Sired by: Green Meads Sanfadair, Langwater Sir Royal, Sanfadair Merrymaker, all Langwater breeding. A good bull is one-half the herd. We select only the best to sell. Call at the Farm, Highway #96 between White Bear and Stillwater, Minn. or write

SANITARY FARM DAIRIES
415 Grove St. St. Paul 1, Minn.

PLAN AHEAD

You can now select Calves, Open Heifers, Bred Heifers from an outstanding herd. Plan now.

CONSULTATION - SALES
E. E. (Al) VARY
Sterling, Rt. 2 Phone: 1830 Illinois

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LITTLE FLOWER FARM offers for sale registered Guernsey bull calves out of dams with over 600 lbs. fat and sired by sons of Coronation King of Pine Manor and Pine Manor King Kenfleury.

BOX 173, R. F. D. No. 1 Crete, Illinois

GUERNSEY BULL CALVES

From proved sires and high production dams at prices you can afford to pay. Free leaflets on Selective Breeding Program.

BURTON LANE FARM
Box 553 Lake Forest, Illinois

JERSEYS

Greater returns per dairy acre

Jerseys make more profit per acre because you can keep more animals per acre, and because they produce more efficiently. And, Jersey milk brings a premium price.

THE AMERICAN JERSEY CATTLE CLUB
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BRIGHAM JERSEYS

MORE THAN ALL OTHERS
Production Honors Are Piling Up

126 TON OF GOLD COWS
(To 2,691 lbs. fat in 4 years)

48 TESTED DAMS
(One with 5 daughters averaging 679 lbs. fat — all Ton of Golds)

2 SENIOR SUPERIOR SIRES
(Both over 600 lbs. fat on daughters' average)

A 16 continuous years average of 500 lbs. fat. 10 successive years above 512 lbs. fat.

Last Year's Average
102 cows - 10,973 milk, 577 fat
All on twice daily milking

We are offering 21 heifers—real ones. Write for list today. Also, a new bull list just out awaits your inquiry.

ST. ALBANS VERMONT
Established 1883
ELBERT S. BRIGHAM, Owner

HEAVEN HILL JERSEYS

We Can Now Supply A Really TOP BULL And A Group Of Unrelated FEMALES.
Start With A Herd
WRITE FOR YOUR LIST TODAY

Heaven Hill Farm

Box HD Lake Placid Club, New York

BILTMORE JERSEYS

More Than 1,200
REGISTERED GUERNSEYS

A BULL BATTERY SECOND TO NONE. We can select the good ones for you. Our best customers have been farmer breeders who came to us for more than 200 bull calves last year.

May We Help You . . . Write

Biltmore Farms
BILTMORE, NORTH CAROLINA

JERSEY BULL CALF

Born May 31, 50 Tattoo S206 by a Jr. Champion in five shows and has Excellent ancestry. Dam Excellent, record 10,788 milk, 533# fat in 305 days. Price $500. Write for pedigree. HARMONY JERSEY FARMS, John St., Greenwich, Conn.

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Pixy's Sybil Gallant 532574. Born Feb. 7, 1951. Three nearest dams average 645 fat (305-2x-ME). Both granddams are Ton of Gold cows. Sire and dam are each 'Very Good.'

CHAS. S. KELLY-DAVID KELLY, Hudson, Wis.

PRODUCTION BRED JERSEYS

Increase your production by using a son of Brampton W.R. Lord Clair whose daughters are showing an increase of 188 lbs. butterfat over dams. Lord Clair will be a Superior Sire soon with a rating of about 550 lbs. butterfat on his first 10 unselected dams. Gold Star Herd.

PLEASANT VIEW JERSEY FARM
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ROTHERWOOD—*Land of Oz*

Is the home of THE ROMANCER, a breezy little publication where the romance of the battle to produce a better generation of Jerseys each time is given due consideration.

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BRYN MAWR FARM has just received its seventh Constructive Breeders Award. Production of 8162 lbs. milk, 422 lbs. fat on 30 Head. Classification 84.23% on 26 Classified females. 100% of herd bred by me or owned four years. Bull calves available. FRANK B. ASTROTH R. 1, South St. Paul, Minn.

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Can furnish Choice High Grade Springer and Fresh Cows. Mostly Jerseys. Also Bred and Springer heifers, Younger heifers. PLAIN VIEW STOCK FARM, R. 3, Box 256, Springfield, Mo., Phone 2-4090.

100 Jersey and Guernsey Springers

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BARGAINS in registered Jersey bulls and bull calves. Best blood lines. Biltmore and Imported breeding. Prices right. Satisfaction always guaranteed. Send for free list. ENNIS STOCK AND DAIRY FARM, Festus, Mo.

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ECONOMICAL FEEDERS

Large feed capacity enables Holsteins to utilize large amounts of home-grown feeds to maintain top production. They have the capacity for greater Vitamin D intake and convert carotene into more true Vitamin A than do the smaller breeds.

There's a FUTURE with HOLSTEINS

HOLSTEIN-FRIESIAN ASS'N OF AMERICA • Brattleboro, Vermont •

CARNATION HAZELWOOD IMPERIAL LADY

944.6 Lbs. of Fat from 24,789 Lbs. of Milk

We Offer A Son of This Splendid Old Cow Sired by Carnation Imperial Madcap Lad

WE CONSIDER a man fortunate who has a son of Carnation Imperial Madcap Lad as his herd sire. The "Madcap" bull is one of the most popular Carnation ever used.

But this particular son of the "Madcap" bull we are offering this week (Ear Tag 8861, born February 25, 1951) is out of the cow pictured above, and she is out of a full sister to the 3-times All-American sire of 5 All-Americans, Carnation Governor Imperial. Furthermore, her sire is out of the greatest daughter of Segis Walker Maledor, with 1,198 pounds of fat as a 4 year old and 3 daughters both over 1,000 pounds of fat.

We Recommend You Write Or Wire At Once For Further Details.

Address:
CARNATION MILK FARMS
1600 Stuart Building,
Seattle 1, Washington

Carnation Bracelet Homestead
Classified "Very Good"

This month we offer a son of Carnation Bracelet Homestead born November 28, 1950. This calf is damed by Piper View Carnation Netherland, who has an A.R. record as a 2-year-old of 527 lbs. fat on 2x milking with a 3.9 test.

For Price and Pedigree write:

STOFFELL'S MILK FARM
Route No. 12 Knoxville, Tenn.

HOLSTEIN and GUERNSEY

Choice selected Grade Springer Cows and Heifers. Large supplies always available. Recently Negative to T.B. and State Laboratory Bang's test. Truck lots or carloads. Quotations on request. We do not handle any young calves.

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With over five generations of our own breeding and under ordinary farm care and 2-time milking, Nowisco M.B.B. Alberta 2632612 is National Champion Jr. 4-yr.-old with 1007.1 lbs. fat and the first cow in the nation to produce over 1000 lbs. fat under 5 years of age on 2-time milking.

This B. B. Creator line of breeding is found in nearly all our herds. This combined with our Reformatory, Wisconsin Admiral Burke breeding is proving that consistent line breeding and selection has taken the gamble out of selecting a new herd sire.

For information and new bull list, write

W. W. KINYON, *Farm Supervisor*
STATE DEPARTMENT OF PUBLIC WELFARE
State Capitol, Madison, Wisconsin

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TUESDAY, MAY 15th WATERTOWN, WIS.
(At Clyman Farms)

75 HEAD of high class, registered and grade cows. Springers and fresh cows, also bred heifers, yearling bulls. Cows with records up to 600# fat. An opportunity to buy the best.

BAIRD & DARCEY, Mgrs.
Watertown & Waukesha, Wis.

REGISTERED
WISCONSIN HOLSTEIN CALVES
FOR HIGHER PRODUCTION HERDS

Exceptional offering of choice registered Wisconsin Holstein Calves. Available in large quantities. Also some Guernsey and Brown Swiss. Vaccinated against shipping fever. Health sheet furnished. Well started — no milk required. Visitors welcome. WRITE OR TELEPHONE

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WATERTOWN WISCONSIN

90 Head of Dairy Cows

HOLSTEINS, GUERNSEYS and HEIFERS

for your selection on hand at all times. Come to Dodge County, Wisconsin, 50 miles northwest of Milwaukee, where heavy producing Holstein cows are raised from foundation purebreds. Priced to meet your demands, one or a carload. We have transportation for delivery to your farm.

Write or Phone

BEN W. NEHLS, Route 3, Juneau, Wisconsin

Choice Holsteins For Sale

Come to the Fox River Valley for good Holstein cattle, either grade or purebreds. We have eight counties in which to select from in the heart of America's Dairyland. Fieldman service.

FOX RIVER VALLEY
HOLSTEIN-FRIESIAN ASSOCIATION
Math Mandsmark, Fieldman, Kaukauna, Wis.

Jefferson County Holsteins

Good Holstein cows, heifers, and bulls; either registered or grades—one or a carload—Come to Jefferson County, Wis. Let us quote you prices on quality cattle from healthy herds. Free fieldman's services.

JEFFERSON COUNTY HOLSTEIN BREEDERS ASSN.
Fort Atkinson Wisconsin

DANE COUNTY HOLSTEIN BREEDERS COOP. ASSOCIATION

Offers special sales service on grade and purebred cattle from one of Wisconsin's largest dairy counties where over 15,000 cattle are on DHIA test and more than 15,000 are bred artificially.

For information write
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Purebreds and grades, many of Pabst, Carnation or Rag Apple blood lines. Selected from the best herds in the state of Wisconsin where better purebred sires have been used for over 30 years. We cover fifteen of the leading dairy counties in Wisconsin.

Services - W. L. Baird - Arthur Bennett - Harvey Swarts - Ed Wayker - Frank Swartz - Don Stouffer at 4¢ per disposition—can handle orders for truck or carloads. Telephone 3644, Waukesha, Wis., or write for information to

INTER-COUNTY DAIRY CATTLE ASSOCIATION
Waukesha, Wis.

40 YEARS' EXPERIENCE

BREEDING HOLSTEINS teaches us to raise the best. We have young bulls of all ages from dams as high as 100.000 lbs. milk in 8 lactations. Others up to over 600 lbs. of fat testing up to 5%. Sires by Pabst Dean, our 823 lb. show son of Roamer.

MOONLIT DALE DAIRY FARM, Bridgeport, Wis.

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If in need of good dairy cows, selected from Wisconsin's oldest and most thickly populated Holstein territory, write FRANCES DARCEY.

Tri-County Holstein Association
Watertown Wisconsin

Pabst Roamer "Excellent"
Gold Medal Proven Sire

SONS OF PROVEN SIRES AVAILABLE

Wisconsin Admiral Burke Lad's (V.G.) transmission of high production is inherited by his sons. Pabst Roamer (Ex.) and Pabst Regal (Ex.), as shown by these averages of their daughters—Burke's 64 daughters average: at 2 yrs. 4 mos. 17,094 m. 3.67% 625.2 f. 3X. Pabst Roamer's 53 daughters ave.: at 2 yrs. 5 mos. 17,857 m. 3.67% 655.3 f. 3X. Pabst Regal's 53 daughters ave.: at 2 yrs. 5 mos. 18,240 m. 3.77% 686.8 f. 3X. Young bulls carrying Burke breeding are available to head your herd. Semen also available. Write for terms.

PABST FARMS, Inc. Acc. & Neg. Oconomowoc, Wis.

A REAL TYPE AND PRODUCTION BULL

Hawthorn King Wayne Return, born Nov. 14, 1950 is a real type and production bred bull calf. Sire, Golden Dairy King Wayne. All-American senior yearling 1949. All-American 2 year old 1950. Dam, Mercedes Pietertje Lyons "V. G." 3025.6 lbs. fat, 3.8% in 322 days at 4 years. On test again, 216.5 lbs. fat, 4.65% in first 74 days. Her sire, Anokostat Thanksgiving Man-O-War. This is a very stylish calf and a bargain at the price. $500.

HAWTHORN-MELLODY FARMS Libertyville, Illinois

Grade and Purebred Holsteins

Richland County's best herds. For fieldman service contact — RICHLAND COUNTY HOLSTEIN-FRIESIAN ASSOCIATION. C. VICTOR GOODRICH, Secretary.

Phone 2340 LONE ROCK, WIS.

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. . . intensely ORMSBY BRED REGISTERED HOLSTEINS — offer serviceable bulls, younger males, bred heifers, Calf Club calves; several choice foundation cows, type classified "Very Good," all have official production records and producing daughters. Address Manager, 6420

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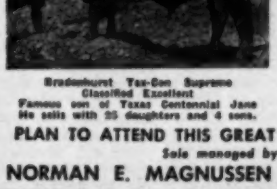

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What The Bang's Test Won't Tell

If you know the limitations of the blood test you will not be disappointed in its use but profit from its aid.

by J. W. Bailey, D.V.M.

THE other day we attended a farm auction where some dairy cows were being sold. Noticing a group of people looking at something that was tacked on a barn door, we walked over to see what had attracted their attention. It turned out to be a large card that gave the results of a Bang's test that had been run on the herd a few days earlier. While looking it over, we couldn't help hearing part of a conversation that was carried on behind us.

"This Bang's testing is all a joke. When a man's selling out what does he want to test his cows for, anyway?"

"The law requires a complete herd test when cattle are sold at a farm auction in this state," said someone else.

"A darned poor law, I call it. It wouldn't be so bad if the blood test was any good, but everybody knows it ain't."

"I wouldn't say that," objected someone else. "A lot of smart people seem to think it's pretty accurate."

"Yeah? People like professors and veterinarians and city guys that have never been up against the real thing. Maybe the test is supposed to be all right, but there's some funny things happen sometimes when it's being run on cattle. You can't make me believe that it's accurate.

"Take Joe Blank's case f'r instance. He bought a springin' cow from a farmer over by Closetohome. She was out of a clean herd, according to the owner, but Joe had her tested to be on the safe side, anyway. She passed a clean test, so he brought her home and turned her in with his own cows.

"A coupla months later she slunk a calf. Joe thought she'd probably been hurt by the other cows when they were fightin,' but he had her blood tested again, just to be sure. The test was run by a different veterinary this time, and you can believe it or not, she turned out to be a four-plus reactor. The same cow, mind you, that the other veterinary called clean when Joe bought her just a few weeks before! Does that sound like the blood test is accurate?

"Joe sold the cow for beef right away, but I don't think he should've. I'll betcha that if he'd a'kept her for a coupla more months and then tested her that she'd a'been clean again. For that matter she might a'been clean right after she lost her calf if a different veterinary had tested her. Those fellows don't agree very well a lot of times and there's some mighty funny things that goes on all the time in this blood-testin' business. I know a lot of farmers besides Joe Blank that've had some pretty discouraging experiences with the Bang's test. I tell you, it can't be depended on very much."

Don't Expect Too Much From the Test

Well, we hear talk like that all the time and a lot of farmers do, too. The people that try to discredit the blood test usually aren't malicious, and there's apt to be quite a bit of truth in some of the stories they tell. However, they can usually be criticized on two other points. For one thing, they frequently expect too much of the blood test and fail to recognize its limitations. For another, they usually don't tell a complete story about the "funny things" that sometimes occur in connection with testing for Bang's disease.

After running quite a few blood samples and checking our results against those of many other veterinarians, we're pretty sure that the Bang's test is better than 99 per cent accurate, and that's a pretty good batting average in any league. Therefore, we're pretty sure that the test will tell whether or not animals are infected with Bang's disease at the time a blood sample is drawn. However, there are some things that it won't tell.

Know the Health of the Herd

It certainly won't tell whether or not animals have come out of a clean herd. This isn't surprising, for only a single animal is being tested. If all the animals were tested, it would then be fairly easy to tell whether or not the herd was clean, of course. Unless such a complete test is run, the blood test won't tell whether or not an owner is telling the truth about the Bang's situation on his farm.

We hear a lot of talk about "clean" herds that don't exist anywhere except in the imagination of certain owners. Sometimes a little questioning reveals that the herd hasn't been tested for years. However, the owner is positive that his cows are "clean" because none of them have aborted for a long time. Sometimes a "clean" herd is claimed even when abortions are admitted. The "slinker" calves are then explained as being due to "slipping on the ice," "fighting in the yard," and similar other accidents. A large number of owners actually believe themselves when they tell such stories, too.

A similar situation often exists because of a misunderstanding of what is meant by a "certified" herd. We recently talked to a chap who was renting a farm and furnishing half of the cattle. His animals had all passed a clean blood test shortly before moving onto the farm a couple of years earlier. The animals owned by the landlord had also passed a blood test at the same time. According to the tenant's reasoning, the two separate clean tests entitled him to claim that the combined herd was certified as free of Bang's disease. In his state, however, such certification could be obtained only after three consecutive clean tests of the entire herd, with the first and third tests being a year apart. A clean herd test was required every year afterward in order to maintain the certified rating.

Exposed But Not Yet Reacting

Without being able to tell anything about the herd or honesty of the owner, a single blood test won't tell whether or not the critter has been exposed to Bang's disease, either. Exposure means having had a chance to pick up germs in food and water or through the breeding act. If it won't tell that, it won't tell whether or not an animal will come down with the disease at some time after it's brought home. This is because of the so-called "incubation stage" which is required by all diseases.

This term simply refers to the length of time it takes for symptoms to develop after germs have entered the body. If a child came down with measles in school, you wouldn't expect your youngsters to "come down" with them until a week or so later, would you? The same sort of thing might be expected if you came in contact with a person who had smallpox or some other "catching" disease. That waiting period would represent the "incubation stage" of the disease. The incubation stage of Bang's is about like that of any other contagious ailment, but is a bit unusual because it varies in length between ten days and several months. This "incubation stage" explains how some animals can be "clean" at sale time and "suspects" or full-fledged "reactors" a little later on. The Bang's test won't tell how long that "incubation stage" is going to be, nor whether or not the tested animal has enough natural resistance to throw off any infection that may attack it.

The Bang's test won't tell whether or not a beast is going to be exposed to infection after the test has been run, either. It's always possible for germs to be picked up in sales barns or trucks or stockyards or a lot of other places. For that matter, the germs of Bang's disease are sometimes picked up even after the animals have been delivered to the farm of the purchaser. We've already mentioned the broad interpretation of "clean" herds that is held by some owners. In the absence of testing, there's no way of knowing whether or not some animals are free of Bang's disease. An absence of abortions is certainly not definite proof that a herd is free of the infection.

May Be Infected But Not Abort

This is primarily because of the fact that some "Banger" cows never lose their calves. In addition, continual exposure may increase the resistance of certain animals. Thus it might be possible for a great deal of infection to exist in a herd where a high degree of resistance has developed to prevent abortions and other symptoms of Bang's disease. However, a newly purchased clean animal with little resistance might be easily infected in the same surroundings. In such an event the owner might understandingly condemn the test as inaccurate or blame the infection on some other source. Such things have happened in the past and a single Bang's test won't tell when or where they'll happen again.

Everything considered, it's not surprising that the Bang's test is so frequently accused of being inaccurate. The next time you hear such a claim made, though, just ask yourself a half dozen questions about the case before deciding whether or not the test was at fault. Try these:

1. Did the tested animal come out of a herd that was definitely known to be free of Bang's disease?

2. Did the owner stretch the truth about the disease status of the herd?

3. Did the animal have a chance to pick up infection after being tested and while being moved around?

4. Did it have a chance to become infected even after it was brought home?

5. Did it have a chance to be in the "incubation stage" when it was tested the first time?

6. Did such an "incubation stage" have any chance of being to blame for differences in test readings?

If you can't supply a definite "NO" to every last one of those questions, you really haven't any right to condemn a given Bang's test as being inaccurate. The blood test will tell only one thing, and that is whether or not an animal is infected with Bang's disease at the time the test is made. This it will tell with an astounding amount of accuracy. Be fair to it and don't expect it to tell anything else, for it won't.

THE END

Veterinary Column

J. W. BAILEY, D.V.M.

Pasture Bloat

As the pasture season gets under way, bloat again becomes an important trouble for dairymen to consider. Not so long ago it was thought that plants like legumes caused bloat because they formed more gas than others. Nowadays it is believed that the bloating is due to a lack of stiff stalks and sharp leaves that normally irritate the stomach lining and cause regular belching to release accumulated gas.

Regardless of exactly what causes it, the sight of a cow that is swelled up like a poisoned pup is a signal for her owner to go into action.

The first thing to do is call a veterinarian, for bloated cows have a discouraging habit of dying. While help is coming there are some things you can do yourself. For one thing you can keep the animal on its feet and moving about, since exercise will help to expel gas. You can help further by tying a stick crosswise in its mouth by using small ropes that run from the ends of the stick back behind the ears. A gag like this will generally encourage chewing movements to assist in the expulsion of gas.

How to Use a Wrench

If a veterinarian isn't available, you'd better try giving medicine, too. Being careful to give only a small amount at a time, you can drench the animal with a pint of a mixture composed of half and half kerosene and warm milk. This dose may be repeated every hour as long as needed, and turpentine may be substituted for the kerosene if desired.

In addition, you may be able to get the cow to swallow one end of a short piece of garden hose so that gas may escape through it. A medium-sized clevis placed crosswise in the animal's mouth will hold it open to prevent chewing of the hose.

As a last resort, bloated animals may be "tapped" with a knife or trocar and canula. An opening is made high in the left flank about half way between the hip bone and last rib. Such wounds are pretty sure to become infected and heal slowly, so you'd better not try "tapping" unless you're pretty sure that nothing else is going to help.

Prevention is a lot more practical than treatment, so we've set down a few things that will help to decrease the danger of bloating on pasture. If you want to try them, you can:

1. Be sure that extremely hungry cattle are never turned into dangerous fields.
2. Change over gradually from barn feeding to pasture.
3. Give animals a good fill of hay before turning them out.
4. Avoid turning in on wet plants that first day.
5. Keep animals on pasture night and day once they're started.
6. Cattle should have access to hay in the pasture or pasture "vestibule."
7. Wait until legumes are in bloom stage before pasturing.
8. Keep salt and minerals available free choice in separate boxes.

Plenty of fresh, cool drinking water is a summer essential for all classes of farm animals.

CALVES CHEW BOARDS

I would like to know what makes young calves chew the wooden boards of their pen.
Savanna, Ill. E. N.

It is probable that calves chew boards because of three reasons:

1. They lack certain minerals in their ration.
2. They instinctively try to exercise their jaws and make them strong against the time when they'll be eating a great deal of coarse roughage.
3. They have just formed the habit of chewing on wood.

You might try furnishing a good mineral mixture free-choice for the calves. In addition, try feeding them whole oats so they'll have a little more excuse for chewing on their feed.

SWEENY

I have a cow that has been unable to walk on her front leg now for three weeks. I have had the veterinarian and he said it was a bad shoulder bruise. Several ranchers around here seem to think she has sweeny like horses get from a shoulder bruise. Please tell me if this is possible for a cow to be that way.
Douglas, Wyo. L. M.

Sweeny in horses is caused by bruising on of the big nerves that crosses over the shoulder blade and results in shriveling of the muscles in this region. Since cattle have the same nerve in the same location, it is possible for these animals to have a similar trouble following a shoulder bruise. Sweeny is probably seen more often in horses because collars fit in the right place to bruise the big nerve and cattle don't commonly wear collars.

Depending on the severity of the injury, the nerve may repair itself in time or the cow may remain permanently crippled.

SUNLIGHT KILLS BANG'S GERMS

Would there be any danger in pasturing a clean herd of cows on land that has been pastured by cows that have Bang's? There are no water holes as they drink from the river. Part of the land is river flats and part upland. It was pastured in 1950.
Marine City, Mich. D. D.

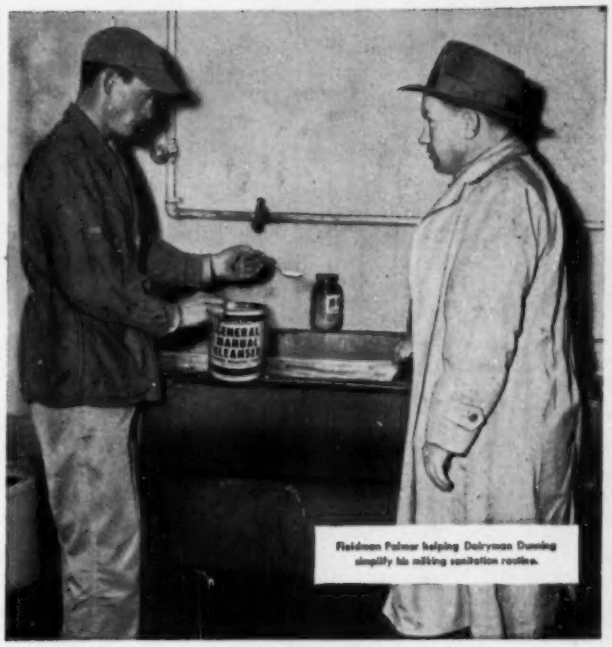
There is always a certain amount of danger in pasturing clean cows on land that has been occupied by Bang's infected cattle. However, there isn't as much danger as there is inside buildings, since the Bang's germs are killed by direct sunlight.

Since the land hasn't been pastured by infected cattle since last year, we think you are fairly safe in pasturing it this year.

STALE BREAD FOR HOGS

Would like to have some information on feeding stale bread to hogs. Does the mold on the bread have any effect on the hogs?
Michigan City, Ind. E. Bros.

The types of molds usually found on stale bread are not poisonous for swine, and we do not know of any way in which they might prove injurious to the animals.



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